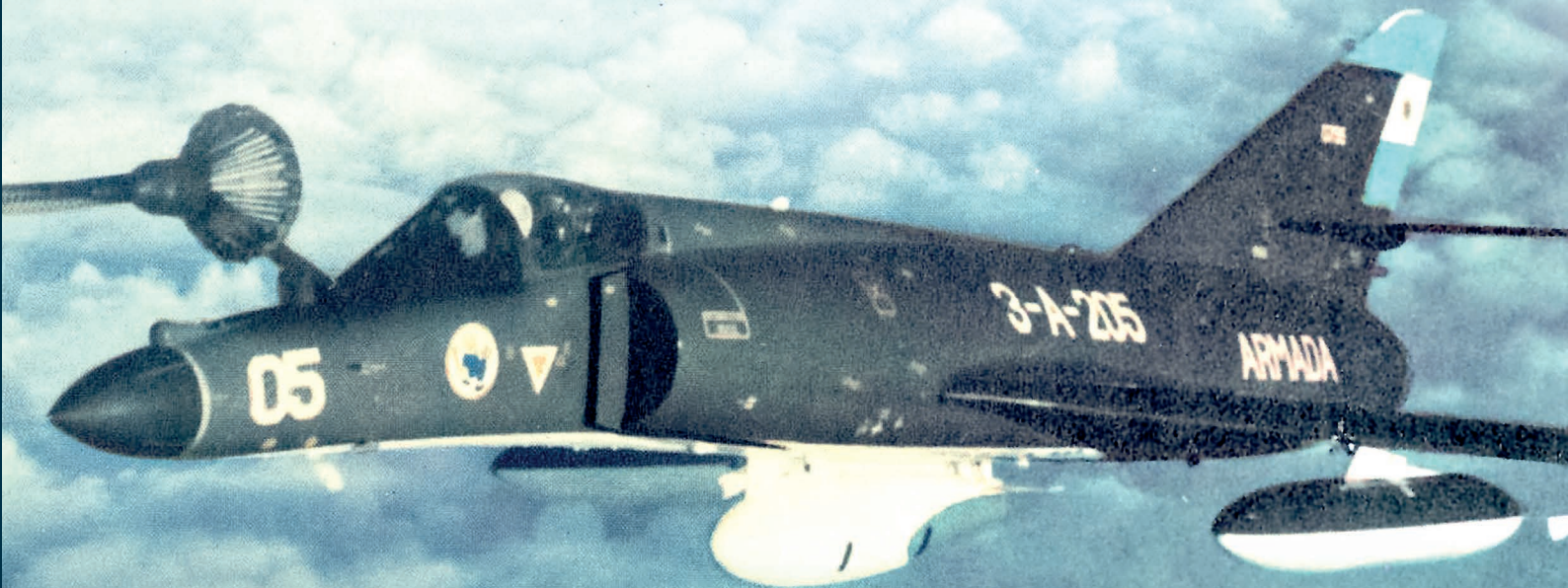


# HANDBRAKE!

DASSAULT SUPER ÉTENDARD FIGHTER-BOMBERS  
IN THE FALKLANDS/MALVINAS WAR 1982



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# A BRIEF PREFACE

There are several books on the Falklands/Malvinas conflict which analyse it from different approaches.

The story is well known: Argentina carried out a military operation to recover (or invade, depending on how you look at it) the islands on 2 April 1982 (after a diplomatic crisis in the South Georgia Islands/Georgias del Sur), the British organised a huge task force and carried out their own recovery (or invasion) on 21 May, and, after intense fighting at sea, in the air and on land, the Union Jack flew over the capital of the islands on 14 June.

This book does not attempt to cover the conflict or its origins. It only deals with one operational unit of the Argentine Navy's Naval Aviation Command, the Second Naval Fighter and Attack Squadron (*Segunda Escuadrilla Aeronaval de Caza y Ataque*), which was arguably the most effective unit (from both sides) of the entire conflict: with only ten pilots, five missiles and four aircraft (the fifth aircraft used for spare parts), it managed to sink a destroyer and a container ship, and performed the most daring attack mission against the Carrier Battle Group.

Remarkably, the Argentine sailors were forced to rapidly develop their new capability. The Super Étendard aircraft and the AM-39 Exocet missiles were new products and even the French Navy had no real experience in their use.

This is a war story, not a story of politics or diplomacy.

It focuses on the unit's combat operations, not on the intrigues to obtain (or prevent others from obtaining) Exocet missiles from third countries nor on the efforts of British Special Forces to raid the Río Grande airbase. Much has already been written, and with considerable success, on these matters.

There are no good or bad guys among the Argentine and British naval service men (and airmen) in combat, regardless of one's opinion of the orders that led them to fight. They were all war professionals

fighting in a conflict where technology began to matter as much as the courage and determination of the combatants.

This book is dedicated to all those who went to fight in that distant 1982 and, especially, to the members of the Second Naval Fighter and Attack Squadron of the Argentine Navy.

Many people contributed to this book, several of whom are quoted in the text, and we are grateful to all of them. Among those not quoted, thanks are due to Claudio Meunier, Martín Otero, John Shields, Ricardo Burzaco, Mark Wood, William Spencer and many others.

Manuela Ciccía Viola helped in the translation of the book. We also thank her.

To avoid any discussion (and following UN guidelines) about the names of the islands or their locations, both their names in English and Spanish are used.

For better understanding of ranks used by the two navies, and while observing that those cited in the book are as at the time of the events, Table 1 is a list of their equivalents for the Armada Argentina (left column) and the Royal Navy (right column).

All times are local (GMT-3), unless specified as Z or ZULU time (GMT).

Table 1: Argentine and British rank equivalents			
Oficiales	Officers	Suboficiales	Ratings
Almirante	Admiral	Suboficial Mayor	Warrant Officer
Vicealmirante	Vice Admiral	Suboficial Principal	Warrant Officer
Contralmirante	Rear Admiral	Suboficial Primero	Chief Petty Officer
Comodoro de Marina	Commodore	Suboficial Segundo	Petty Officer
Capitán de Navío	Captain	Cabo Principal	Leading Hand
Capitán de Fragata	Commander	Cabo Primero	Leading Hand
Capitán de Corbeta	Lieutenant Commander	Cabo Segundo	Able Seaman 1
Teniente de Navío	Lieutenant	Marinero Primero	Able Seaman 2
Teniente de Fragata	Sub-Lieutenant	Marinero Segundo	New Entry
Teniente de Corbeta	Acting Sub-Lieutenant		
Guardiamarina	Acting Sub-Lieutenant		

# FOREWORD

It is difficult to slip out of a book which deals with one's own story and write its foreword, avoiding personal references. But it is an invitation from Mariano, its author, and there is no excuse.

It is 25 May in the afternoon, a special date in Argentina, the Fatherland's Day. We fly fast to meet the Task Force ships. We are at war. It's a movie, but the frames are passing in slow motion. The only thought: get it right, no fails allowed. No hatred; conviction, rather. Too many comrades and friends gave their lives in the days before.

The speedometer shows 510 knots (945km/h); the altimeter 50 feet (15 metres) above the sea and the needle vibrates nervously, could it be the swell? To my right, the blue sea stretches as far as the eye can see; to my left, the sea and a small silhouette of a dark grey aircraft, that of Julio "Mate" Barraza, my wingman. Behind, the sea with the golden reflection of the sun going to bed. In the bow, a horizon whose blurred line combines the sea and the sky due to the hour at those latitudes, contemplated through the HUD (Head-Up-Display) where the numbers and fluorescent





Captain Roberto "Toro" Curilovic in 1996. (Guillermo Sentis)

Some sweat, the anti-exposure flight suit, the survival waistcoat on the torso, the anti-G suit squeezing legs and abdomen, the helmet and the oxygen mask, add a few more degrees to the body temperature.

The pages of this book provide a detailed account of the history of the acquisition of Super Étendard aircraft in 1980 and that of its first group of pilots and technical personnel of different specialisations, who travelled to France to make the incorporation of these aircraft to the Naval Aviation a reality. The characteristics of the aircraft, its performance, its equipment and its exceptional anti-ship weapon (the AM-39 Exocet missile) are also described.

The experiences of the ground crew of a squadron equipped with single-seat attack aircraft during the execution of a mission resemble those of a Formula 1 racing team during a Grand Prix. They bid farewell their aircraft and pilots and return to the pits to follow in their heads the "race" that is unfolding. The engine mechanics go over the parameters of the last tests performed in their mind, together with the electrician, the electronics and hydraulics personnel. The ejection seat mechanic relies on the check carried out on the ejector seat. The armament technician checks the safety pins still in his hands, removed at the last moment from the missile and the launcher. All of them hoping that the various systems



Capitán de Navío (Retired) Augusto Bedacarratz poses in Espora with a Super Étendard of Segunda Escuadrilla Aeronaval de Caza y Ataque. (Martín Otero)

geometric shapes projected on the armoured windscreen provides information. There is no noise, the rest of the instruments show normal parameters. Left hand on the throttle and right hand on the flight stick. There are no flocks of sea birds around..., of course, we are in the vastness, far from the coast.

A whole team is behind this flight, relying on us. We have the most modern attack aircraft in Argentine aviation, the only one at the height and level of capabilities required for the war being fought.

under their responsibility will work properly. They have been preparing for it for years and are confident of their work. Races are won in the pits and on the track.

With no LCD screens in the pits to show the airplanes in flight and no real-time news, the clock is ticking too slowly for these men.

We are in range, the radar screen confirms the presence of the enemy ships, targeting and launching the missile that will attack its prey. I imagine for a moment the situation on the opposite side. Alarms, fears, orders, manoeuvres. The dreaded word "Handbrake!" stunned in the ship's operating rooms.



3-A-205 in Espora, in 1983. (via Christian Larrieu)

The war, like all wars, cruel and incomprehensible, will end with destroyed ships, with the lives of combatants dragged to the bottom of the sea and aircraft shot down. Everyone loses in war.

Immediately after the launch, we gain distance to avoid enemy missiles and return to the mainland, wait for the result and prepare for the next mission.

Small lights in the air, in the dark night that embraces the runway, give a sign that the airplanes are coming back after a long flight. There is rejoicing in the pits, the clocks are ticking again. In the race that has just ended, the team has achieved good results.

The Argentine Navy is proud of its men for what they did in all the combat stations.

The circumstantial British enemy recognises what the actions of the *Segunda Escuadrilla Aeronaval de Caza y Ataque* meant to them (as Sun Tzu said, 500 BC: "If you want to know how you did in war, ask your enemy"). A real nightmare. According to their own sources, 61% of their total tonnage sunk, 33% of their aircraft lost and 13% of their men down is the balance. This is the achievement of ten pilots, ninety men and only four aircraft with the anchor on their wings and the historic shield of the Jayhawk wielding a club ("La Lora") on their fuselages.

The whole of society recognises the performance of Argentine aviation, and that of this Squadron in particular, in the Malvinas [/ Falklands] Conflict.

These are the valuable diplomas earned.

Throughout time there will be debates, differences in records, publications from one side and the other, countless reports with contradictory statements. It is said that in a war "the first casualty is the truth". This book, the product of responsible research, attempts to rescue and reflect that truth in a balanced way. It will be a long time and a lot of water under the hull before light is shed on this war. None of this can overshadow the sacrifice and memory of the men who fell in combat.

No aircraft were lost during this battle and no Squadron member's life was taken. But during the 40 years that followed this war, there were different daily battles, without enemy, without real combat,

but which took a heavy toll to maintain with pride, prestige and professionalism their aircraft in flight condition and their presence in our southern sea.

I am convinced that those who left us in their final take-off now form another squadron in that celestial sky that we shared for many years: Bersano, Bonilla, Carrizo, Casín, Contrera, Corti, Cosnard, Chaile, Del Rosso, Fernández, Fernandez O, García, Gonzalez, Lavezzo, Manchinelli, Márquez, Montenegro, Orellana, Quintana, Santi, Torres, Villarroel.

My eternal gratitude for their efforts. Mission accomplished.

Roberto Curilovic  
"Toro" (Bull)

Super Étendard aircraft pilot



# THE DASSAULT-BREGUET AVIATION SUPER ÉTENDARD AND THE EXOCET MISSILE

The Dassault-Breguet Aviation Super Étendard fighter-bomber is a good example of French aviation technology and, by the late 1970s and early 1980s, was arguably one of the finest naval aircraft in the world.

The Super Étendard is, above all, a naval aircraft, the offspring of a naval aircraft.

The aircraft was born as the natural evolution of the Étendard IVM, the embarked fighter also designed and built by Dassault which made its first flight in May 1958. As the French naval aviation needed a new aircraft after the failure of the navalised version of the Anglo-French Jaguar (due to political rather than technical reasons), an aircraft that would have 90 percent in common with the Étendard IVM was proposed. Eventually, it would end up being 90 percent different. However, they had so much in common that the Super Étendard prototype was converted from an Étendard IVM and, in fact, they are, at first glance, similar aircraft.

The Super Étendard prototype first flew on 28 October 1974 and, after the usual cutbacks in the purchase of weapons systems, 71 aircraft were ordered for the French Navy, the first of them being delivered in June 1978. By February 1979, the first French naval unit (*Flotille 11F*) had already had its 12 aircraft delivered. Production of the Super Étendard was to be completed in 1982.

The entire design is intended for carrier-based operation. It is a single-seat, single-engine aircraft (with the pilot sitting on an ejector seat), powered by the SNECMA (*Société nationale d'études et de construction de moteurs d'aviation*) Atar 8K50 engine, basically a navalised and non-afterburner version of the Mirage F1 engine, a

very reliable and good performing engine for its time, with 11,023 pounds (or 5,000kg) of thrust.

The aircraft can fly at 673mph (Mach 1.02) at 36,090 feet (11,000 meters) or 733mph (Mach 0.96) at sea level. At low altitude and high speed, its fuel consumption is almost 70 litres per minute. It should be noted that the capacity of the fuel system is 3,270 litres in internal tanks, with external tanks of 1,100 or 600 litres.

The difference, however, lies in its electronic equipment. In the nose of the aircraft is the Thomson-CSF/EMD Agave single-pulse, I band radar with air-to-air, air-to-ground or ground mapping mode capability. In air-to-air mode, it can detect a fighter-sized aircraft between 18 and 28 kilometres (9.7–15.1 nautical miles), while in air-to-surface mode, it has a range of about 50 kilometres (27nm) for a patrol-ship-sized target, and about 100 kilometres (54nm) for a destroyer-sized vessel. The pilot can also determine the search mode (air-to-air or air-to-surface), as well as set the radar scale (visible on a 10-centimetre diameter display) between 5 and 80 nautical miles. The radar is also connected to the Head Up Display (HUD) of the aircraft (a Thomson-CSF VE120), where it displays the tracking parameters of the contacts.

*Capitán de Corbeta* Jorge Colombo (the importance of his opinion will be seen later in the text) talks about the radar:

The Super Étendard radar is an attack radar, not a search radar. The radar, for sea search mode, had for a medium target, if flying at 10,000 feet, a range of 40 or 50 miles, no more. It had



3-A-207 in a workshop in BAN Comandante Espora. The SNECMA ATAR 8K50 turbojet engine can be seen on the right. (Alejandro Amendolara)



Super Étendard 01 (prototype) during initial tests on the French aircraft carrier *Clemenceau*. (Dassault)

a relatively narrow sweep sector of 60°, 30° on either side of the nose of the aircraft.

The aircraft also has Thomson-CSF BF RWR (Radar Warning Receiver) gear, which allows the direction of the enemy radar emission to be established and warns whether the radar is a search radar or a fire control radar. According to Captain Colombo:

The BF is the radar detector. It has two red lights, one more important than the other. One was TWS (Track-while-scanning) which warned of a search radar, but the other was CW (Continuous wave) which meant that a missile was on its way towards the aircraft.

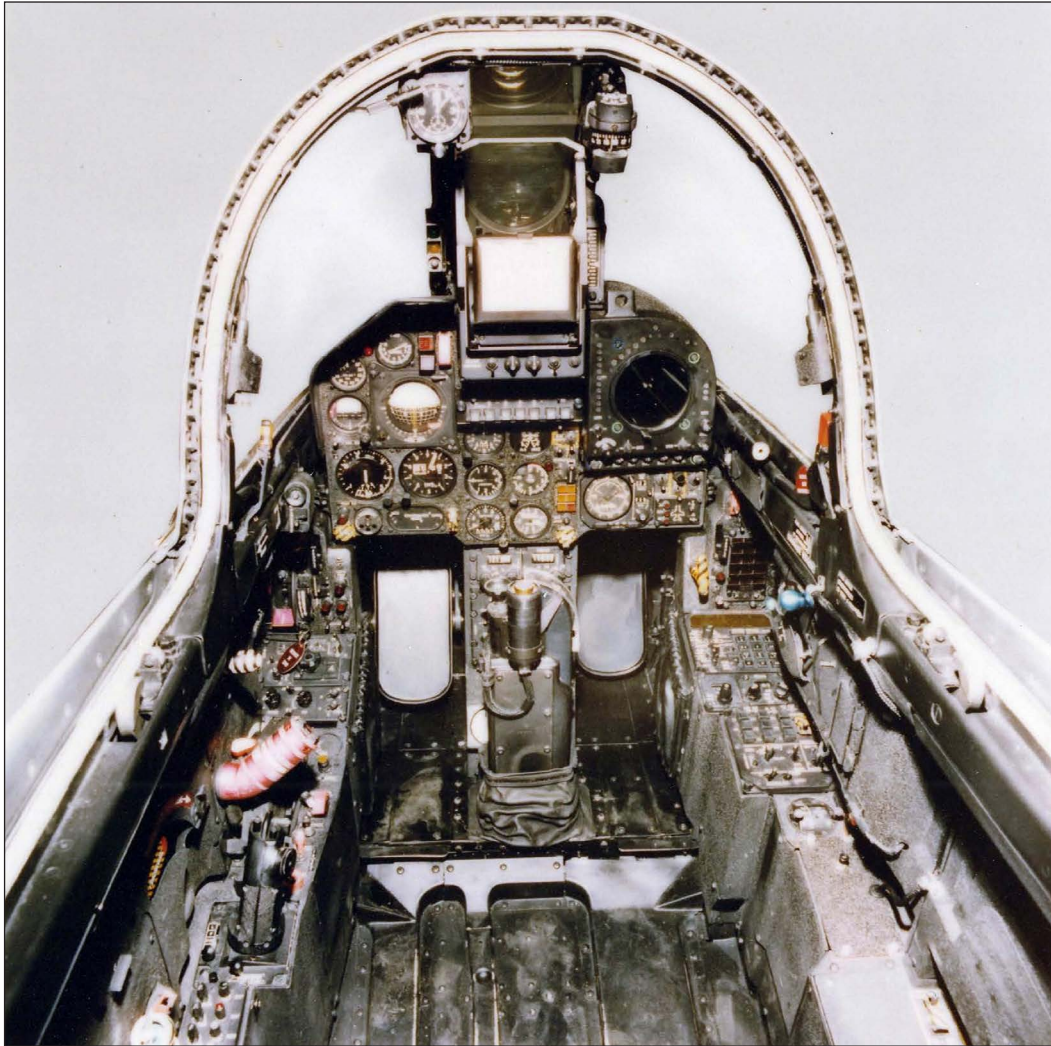
For an aircraft flying over the sea, it was also imperative to know its exact position (GPS did not exist at the time), so it was fitted with an inertial navigation system (INS) provided by SAGEM (*Société d'Applications Générales de l'Électricité et de la Mécanique*), ULISS 40 in French aircraft, which gave an initial error of 1.2 miles per hour flown, even though the information could be updated, either by the

pilot entering accurate information (for example, when flying over a known point) or by providing the Agave accurate radar ranging fixes. In addition, the ULISS 40 equipment is in contact with the Exocet AM-39 missile's own inertial navigator, providing it with information about the target to be attacked.

As a fighter-bomber, it has two DEFA (*Direction des Études et Fabrications d'Armement*) 552A 30mm guns, each with 125 rounds (and a rate of fire of 1,300 per minute) and can carry a variety of air-to-air and air-to-ground weapons, the most powerful being the AM-39 Exocet missile. This, of course, not to mention the capability to launch nuclear weapons. Launchable weapons are carried at four points under the wings and one under the fuselage. Additional fuel tanks, an in-flight refuelling pack or a reconnaissance pod can also be loaded there.

It should be noted that, on a typical naval strike mission, there would be a single AM-39 Exocet missile on the starboard inboard pylon, a 1,100-litre tank on the port side and a smaller 600-litre tank under the fuselage. This gave a maximum range of 880km (475nm) and a combat range (Hi-Lo-Hi mission profile) of about 700km (380nm).





Cockpit of a Super Étendard, typical of an aircraft with technology from the late 1970s. At the top is the head-up display (HUD), a Thomson-CSF VE120. To the right of the cockpit is the Thomson-CSF/ED Agave radar display. Below it (a small aircraft symbol) is the Thomson-CSF BF Radar Warning Receiver display. (Dassault)

As hinted at, the AM-39 is the best choice weapon for anti-ship strikes. The missile is a derivative of the MM-38 (MM for *mer-mer* or sea-sea) designed by the French company Nord Aviation (later Aérospatiale) which entered service in 1975. The MM-38 had been a very popular missile following changes in naval tactics in 1967, when the Israeli destroyer INS *Eilat* was struck by P-15 Termit (NATO: Styx) anti-ship missiles.

The designer's idea was for a sea-skimming missile, capable of knocking out a 3,000–4,000 tonne ship and which could be launched from a small vessel. The intended range was 38km (hence the 38 in the missile's acronym), but it was eventually estimated that, under favourable conditions, it would have a maximum range of between 40 and 42km. The minimum range was 4.4km.

"MM-38" lacks marketing, so a Nord Aviation engineer (J. Guillot) came up with the name Exocet, after the *Exocoetus volitans*, better known as the two-wing flying fish or blue flying fish. A clever name that equated the missile with this small fish that flies at low altitude and high speed.

The MM-38 Exocet is a very French missile: for the Nord Aviation design, for Electronique Marcel Dassault (EMD) auto-steerer, for the SERAT explosive and fuse, for the TRT altimeter, for the SAGEM and SFENA navigation system gyroscopes, for the SNPE propellant and, finally for the Jaeger rudders.

Despite that, in a world that was beginning to globalise, many of the contractors procured from abroad, as the UK (the Royal Navy placed the largest missile order) and West Germany requested that companies in their countries also be suppliers of the missile technology. All in all, approximately 17 percent of each Exocet is British.

The missile is carried in a box that protects it from the weather and the sea (after a year on board a ship, it is still considered to have an operational reliability of 93 percent). It is fired with distance, azimuth and heading data provided by the launcher's sensors (via the *Installation de Tir Standard* or ITS) and flies at an average Mach 0.93 powered, first, by a booster rocket burning 101kg of solid propergol in 2.4 seconds. After that, a sustainer rocket is ignited, which will burn the 150kg of fuel in 108 seconds. After launch, the missile is fully autonomous. A true fire-and-forget, it flies inertially at a height of about 15 metres (49 feet)

At the end of the inertial flight stage, the missile switches on its internal I band ADAC

Mk.1 (*Auto Directeur ACTif*) radar to finesse its terminal phase of the attack. It then heads for the centre of the first target it finds, searching from left to right. From there, the flight height of the missile is variable and can be adjusted between three settings, depending on sea conditions: 7, 4.2 or 2.2 metres.


The missile can be programmed to start searching at 12, 8 or 5km from the intended target, with a search sector width, also adjustable, of 2.5° (e.g. to hit a particular target within a formation of ships), 6.25° or 10°. The depth of the search sector can be 500 metres, 1,200 metres or 2,500 metres. If it fails to find the assigned target (or, for some reason, overshoots the target without hitting it), the missile will continue searching until it finds one within its search window.

Once the target is reached, the fuse allows the missile to penetrate the ship, so that the 165kg warhead (containing 42.5kg of Hexalite 60/40, or 60 percent hexogen and 40 percent TNT) explodes about three metres inside the target. Upon detonation, the explosive casing fragments into 25–50 gram shrapnel, which can pierce a 12mm thick steel plate within two metres of the detonation. Likewise, if the Exocet estimates that it is overshooting the target from above, its radio altimeter will also detonate its warhead. This function must be activated or deactivated by the operator prior to launch.

In either case, it will achieve its designer's purpose, which is to put a medium-sized surface ship out of action. The Exocet is not a missile designed to sink, given its characteristics and relatively small



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The Thomson-CSF/EMD Agave radar, *Flight* magazine, 2 July 1977. (Courtesy of [www.aviationancestry.co.uk](http://www.aviationancestry.co.uk))

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SAGEM advertises its new ULISS inertial navigation equipment. *Flight* Magazine, 9 June 1979. (Courtesy of [www.aviationancestry.co.uk](http://www.aviationancestry.co.uk))

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a family of long range missiles  
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The AM 39 can be launched at all altitudes.



MM 40 has an over-the-horizon capability.



The MM 38 uses the full detection range of the launcher's radars.

- They can be:
  - Surface-launched (MM 38 - MM 40) from ships of all tonnages, or from fixed or mobile coastal batteries.
  - Air-launched (AM 39) from helicopters, strike aircraft or maritime patrol aircraft.
  - Sub-launched (under development).
- They have basically the same principle of operation and the same maintenance equipment.
- They are FIRE AND FORGET and SEA SKIMMING, which makes them practically INVULNERABLE to all enemy defences.
- They provide SUPERIORITY in anti-surface warfare to those countries which adopt them, owing to their range, speed, accuracy and killing power.

24 countries have chosen the EXOCET.  
More than 1.600 EXOCET missiles have been ordered.

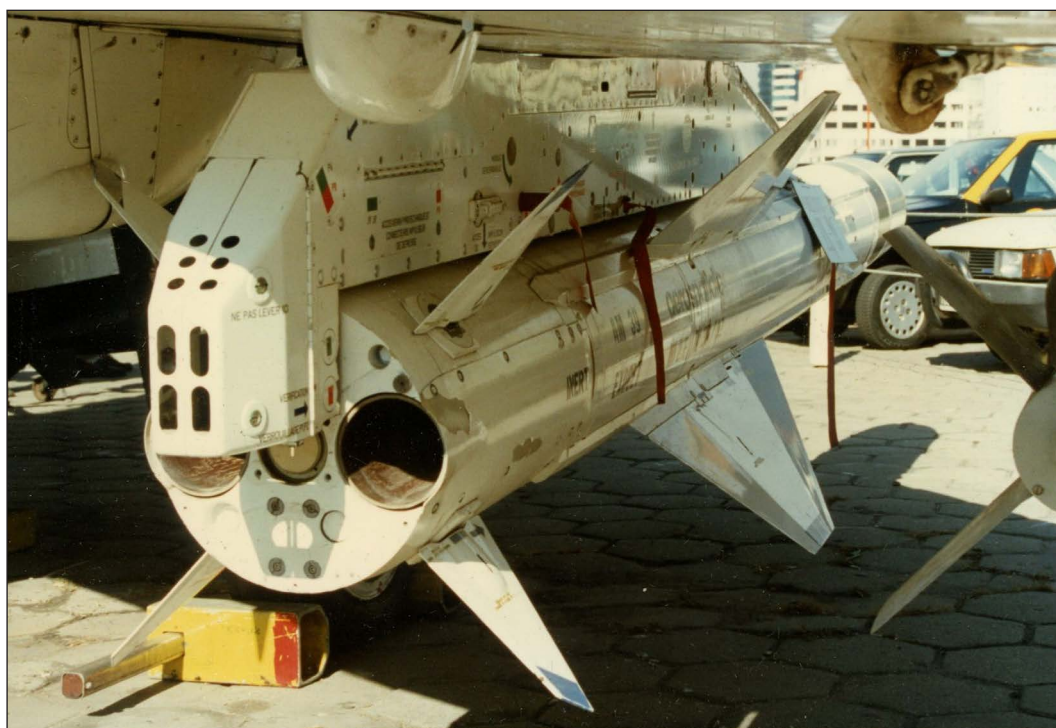
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**aérospatiale**  
DIVISION ENGINES TACTIQUES  
2-16, rue Beranger - 92320 Châtillon - France

Aérospatiale and its family of Exocet missiles, *Flight* magazine, 7 May 1983. The advertisement indicates that 27 countries had chosen these missiles, with 2,000 of them having been produced. A similar advertisement, which appeared in the same magazine on 27 March 1982, reported that only 1,600 missiles had been produced, for 24 countries. The 1982 conflict generated genuine interest in these weapons and an explosion of sales. (Courtesy of [www.aviationancestry.co.uk](http://www.aviationancestry.co.uk))





Super Étendard 3-A-204 at an exhibition in Buenos Aires Harbour in the early 1990s. On the left is a MATRA Magic air-to-air missile and, behind it, an Exocet. (Alejandro Amendolara)



A close-up view of the nozzles of an AM-39 Exocet and Type 755 mount. (Alejandro Amendolara)

warhead. However, 165kg of explosives and a total (initial) weight of 735kg at high speed sometimes cause major damage...

The missile incorporates a low-altitude approach and starts to emit with its radar in the last moments of its flight path, granting the target ship very little time to react. To make matters worse for its enemy, the missile has an ECCM (Electronic counter-countermeasure) capability with its Home-on-Jam (HoJ) system, i.e., it targets the location from which it is being jammed.

However, the original versions of the ADAC autodirector did not discriminate between ships and chaff (small aluminium strips launched to simulate radar echoes). It was not until 1982 that the modification known as ADAC 16 came into use (but not in the Argentine Navy), which gave the missile the ability to distinguish

between a real target and one that was nothing more than a chaff cloud. This possibility of being lured by chaff was something the Royal Navy was well aware of.

The Argentine Navy had purchased quite a large number of MM-38s, which were installed from 1976 (i.e. a year after they entered service) on its old ex-US Navy destroyers, which fought in the Second World War, as well as on new ships being acquired. By the 1982 conflict, seven Argentine Navy ships had missile launchers (in most cases, four per unit) and therefore had a large stock of missiles, as well as the knowledge to maintain and operate them efficiently. It should be remembered that several Exocet missiles and components were removed from destroyer ARA *Seguí* (ex-USS *Hank*) and taken to the Falklands/Malvinas, thus improvising a coastal launch battery, one of whose missiles struck HMS *Glamorgan* in the early hours of 12 June.

The natural evolution for this missile was that it could be air-launched, so the AM-38 (for *air-mer*) was born, which could be carried by the huge Aérospatiale SA321 Super Frelon helicopters. However, the missile was very large, very heavy and the large ailerons complicated its use on smaller aircraft. These drawbacks led to the design of the AM-39, the new member of the Exocet family, which would be lighter (655kg instead of 735kg), shorter (4.7m instead of 5.2m)

and equipped with improved propulsion and guidance systems.

In 1974, the French Navy chose this missile, and flight tests began in 1976, which resulted in lower performance than planned. After several improvements, further tests were conducted from May to November 1978 (from Super Frelon helicopters), which then exceeded the expectations placed on this weapon.

One of the problems for the Aérospatiale team to overcome was that the missile, unlike the MM-38 which is in a box launcher, is placed free under an aircraft, where it is subjected to changes in temperature, humidity, pressure, vibrations, sea salt and, above all (if used on a plane), the accelerations involved in take-off and landing, especially from an aircraft carrier.



Also, unlike the MM-38, the missile free-falls for few seconds before igniting the propellant away from the launching aircraft. It should be noted that the AM-39 will not start its sustainer rocket engine until the actual speed is below flight speed (Mach 0.93), so if launched at high altitude and speed, its range could be up to 70 kilometres (38nm).

The missile was adapted for firing by Sikorsky Sea King helicopters and Dassault Mirage V aircraft in 1979. It was not until 1981 (long after the Argentines bought it) that the problems were solved so that it could be fired from the new Super Étendard. By this time, the missiles were already “combat proven” when they were launched by Iraqi Navy SA-321GV Super Frelon helicopters in October 1980 against merchant ships in the Persian Gulf.

To be used on the Super Étendard, the Exocet is fitted to the external starboard station, via a Type 755 mount. The aircraft is required to have its guns removed and the ITA (*Installation de Tir Aeroporté*) module and the other technical components for the use of the missile are fitted in their place. The SNIAS Starlite module is used to check whether the Exocet is operational and therefore available for future launch.

The Argentine Navy also uses them from two of its Agusta-Sikorsky ASH-3D Sea King (tested in 2003, when a missile was successfully fired at an old fishing boat), and one of its Lockheed P-3B Orion Maritime Patrol Aircraft (MPA) can fire it, even though the system was never fully tested.

## 2

## THE SECOND NAVAL FIGHTER AND ATTACK SQUADRON OF THE ARGENTINE NAVY IS REBORN

The Naval Fighter Squadron was born on 9 August 1956, equipped with ex-US Navy Chance Vought F4U Corsair aircraft. The Argentine Navy had purchased 26 of the F4U-5, F4U-5N night fighter and F4U-5NL all-weather versions (equipped with the AN/APS-4 radar). The Corsairs, which were acquired to operate from the aircraft carrier ARA *Independencia* (formerly HMS *Warrior*), gave the Argentine Naval Aviation a unique capability in South America. The squadron later changed its name to Combat Flotilla, before acquiring its current name of Second Naval Fighter and Attack Squadron (*Segunda Escuadrilla Aeronaval de Caza y Ataque*). By 1965, the aircraft were decidedly outdated, and the squadron was deactivated.

However, in 1970, the squadron was reborn and began operating former *Armée de l'Air* North American/Sud Aviation T-28P Fennecs from the aircraft carrier ARA *25 de Mayo* (formerly HNLMS *Karel Doorman* and, before that, HMS *Venerable*).

Argentina had acquired 65 of these aircraft (including 10 for spare parts) in 1967 and, in those years, with its own technology, had converted 13 of them to operate from aircraft carriers, adding an arrestor hook, structural airframe reinforcements and modifying the propellers.

The Fennecs were no strangers to guided weapons either. In the mid-1970s, they had been used to test the MP1000 *Martin Pescador* (“Kingfisher”) missiles, designed in Argentina and bearing a strong resemblance to the US-made AGM-12 Bullpup.



Jayhawk and *La Lora* (Female Parrot). The insignia of the *Segunda Escuadrilla Aeronaval de Caza y Ataque* was inspired by the VF-144 Bitter Birds Squadron's crest. In 1956, when the Squadron was being activated, its second-in-command, *Teniente* Román Pacheco, thought that an insignia of a Squadron that had flown the F4U Corsair in combat would be appropriate. Looking in a US *Approach* magazine, he found the crest of VF-844 (which had fought in Korea) depicting a Jayhawk (a bird that never existed, by the way, but is popular in Kansas), only modifying the original blue colour for the green it now carries and, for which other Naval Aviation units jokingly named it *La Lora*. But even parrots can be dangerous when they carry a stick with a nail in it.



By 1978, the T-28P Fennecs had outlived their usefulness in the Argentine Navy, and the Second Naval Fighter and Attack Squadron was (again) deactivated. In those almost 20 years of service (counting that from 1965 to 1970 the squadron had not been operative) it had flown approximately 34,000 hours, operating from aircraft carriers, and had even had its baptism of fire.

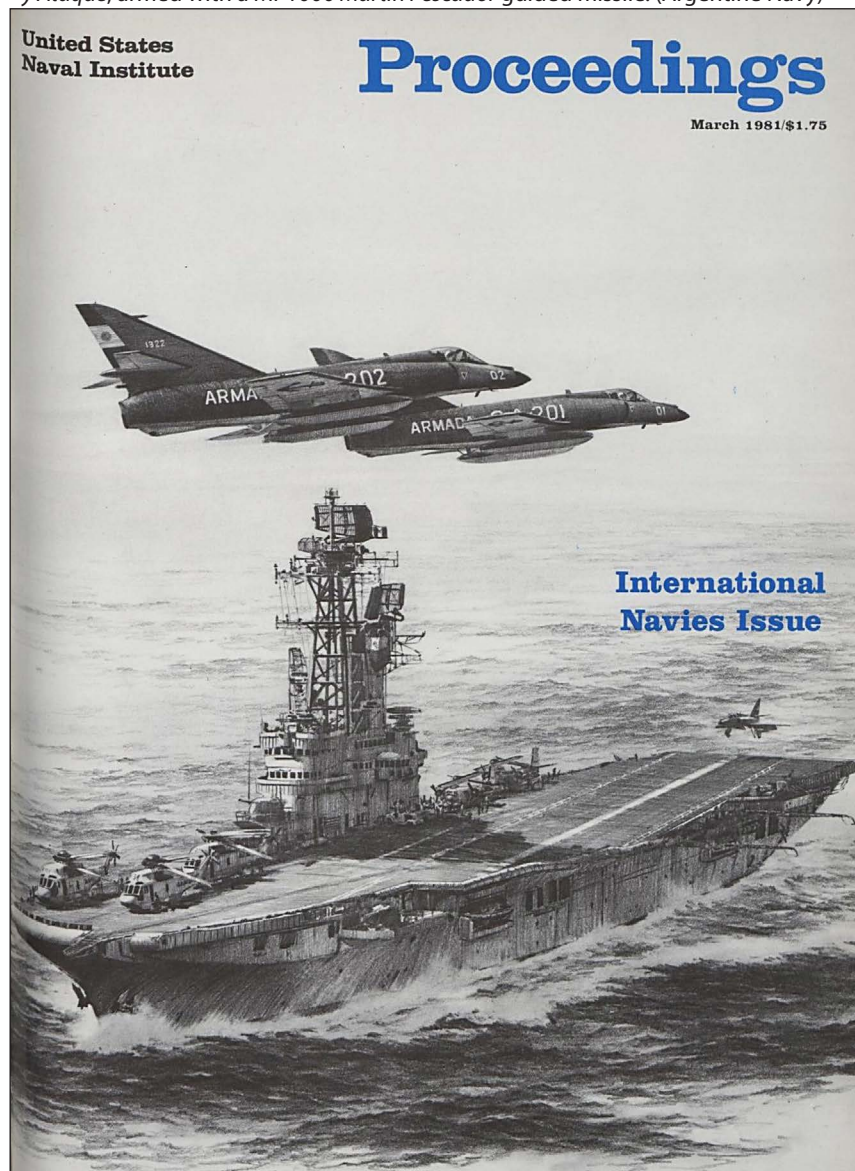
Indeed, on 2 April 1963, five F4U-5 Corsairs of the squadron, each armed with eight HVAR 127mm rockets and 250kg bombs, attacked the Argentine Army's 8th Tank Cavalry Regiment of Magdalena (located about 100km south of Buenos Aires) in a complex internal confrontation between the armed forces, which became known as the Battle of Azules vs Colorados (Blues vs Reds). The naval aviation units (along with the Corsairs, operating 12 North American T-6 Texans and five Grumman F9F Panthers), which were on the Red side and departing from the nearby Punta Indio Naval Air Base, caused material damage, killed nine and wounded 22 servicemen from the Army regiment. In turn, anti-aircraft fire caused the downing of Corsair 0384/3-A-211, even though its pilot was uninjured.

However, it would not remain deactivated for long. By 1977, the Argentine Navy had already begun talks with French representatives to establish whether the purchase of the new Super Étendard aircraft and Exocet missiles was possible. This was because negotiations with the US government to supply Douglas A-4M or A-4F aircraft (the Argentine Navy had already been operating A-4B aircraft since 1970, which had been designated A-4Q for export) had been stalled.

It should be recalled that a military junta, composed of the Commanders in Chief of



A North American/Sud Aviation T-28P Fennec of the *Segunda Escuadrilla Aeronaval de Caza y Ataque*, armed with a MP1000 *Martin Pescador* guided missile. (Argentine Navy)



Two Super Étendards fly over the ARA 25 de Mayo, on the cover of the March 1981 issue of Proceedings magazine. It was clear to the international community that the air arm of the Argentine Navy would become a relevant actor in the South Atlantic. (USNI)





The aircraft of the *Segunda Escuadrilla Aeronaval de Caza y Ataque*. From left to right: Chance Vought F4U-5 Corsair (3-A-211), North American T-28A Fennec (3-A-333) and Dassault-Breguet Super Étendard (3-A-204) armed with AM-39 Exocet missile. (Argentine Navy)

each of the Argentine armed forces which had ruled the country since the 1976 coup d'état, was engaged in several military equipment renewal or purchase projects, and defence spending (in relation to GDP) had doubled since 1975. At the same time, tension with Chile over the issue of sovereignty over the Beagle Channel Islands was perceived to be increasing.

Beyond the economic issue, it was necessary to know, first and foremost, whether the new aircraft could operate on the aircraft carrier *ARA 25 de Mayo*, which was also being modernised to extend its service life by another 10 years.

This included not only establishing whether the aircraft could land there due to

its flight deck dimensions, but also if it was suitable for using the carrier's catapult (the maximum weight for landing and catapulting was 12 tons), as well as other questions that were not minor, such as whether the Super Étendard's wingspan would allow it to fit in the two lifts.

These discussions and studies went on for almost a year and, on 18 July 1978, having established that the Super Étendard was a suitable aircraft to operate from the Argentine aircraft carrier, a pre-contract was signed for the delivery of the aircraft and their weapons.

Not many other options were available for the Argentine Navy. The only three aircraft considered suitable for operation from the Argentine carrier were the Douglas A-4, the Super Étendard and... the British Aerospace Harrier/Sea Harrier (which was ruled out for technical and political reasons).



The Super Étendard 3-A-205 on the bow lift of the *ARA 25 de Mayo*, possibly in 1985. Unrestricted use of lifts was an important factor in the choice of a candidate. (Argentine Navy)

The final contract (actually, a series of agreements involving the French government and various French companies such as Avions Marcel Dassault-Breguet Aviation, Thomson-CSF, SNECMA and Aérospatiale) was only signed on 10 September 1979, and mainly provided for the delivery of:

- 14 new Super Étendard aircraft
- 10 AM-39 Exocet air-to-sea missiles
- 84 R550 Magic air-to-air missiles
- A flight simulator
- Spare parts for 4,000 flight hours, tools and test beds
- Technical assistance needed to operate the aircraft and weapons



The 14 aircraft purchased, it had been established, allowed for seven to be embarked onto the carrier, to form two attack sections, one section for air-to-air combat and, finally, to have a reserve aircraft. In any case, it was never intended to operate all 14 aircraft simultaneously, but to have seven in active service and the other seven in maintenance or preserved.

It was stipulated that the first five aircraft were to be delivered two years after the contract was signed and would be identical to the aircraft being delivered to the French Navy at the time, with three important modifications. The first was that the SAGEM ULISS 40 inertial control unit would be replaced by the more modern ULISS 80 – free of US technology, which was forbidden to Argentina – and the second, that the aircraft would be equipped with a Martin-Baker ejector seat model SMB Mk.6T, replacing the original Martin-Baker CM4A. In contrast to what often happens when modern weaponry is sold to third world countries, the changes actually involved improvements to the aircraft.

The ULISS 80 inertial control unit – consisting of the UNA 80 navigation and attack unit, the PCN 80 command and navigation post and the UEC interface and control unit – was lighter, more reliable and more accurate than the previous one, and the new ejection seat had much better performance: it was a zero-zero model, designed to safely extract upward and land its occupant from a grounded (zero altitude) and stationary (zero airspeed) position.

The only feature that the Argentine aircraft lacked, and this was the third of the relevant modifications, compared to the French aircraft, was the possibility of launching nuclear weapons, either the AN-52 nuclear bomb or the projected ASMP (*Air-Sol Moyenne Portée*) missile.

The weaponry and equipment, all entirely new, would be delivered in batches.

At the same time, another contract was signed with the French government for the *Marine Nationale* to train Argentine pilots and technical personnel on the new airplane. The aircraft would therefore be manufactured, and personnel trained on the aircraft, at the same time.

With the contracts signed, the first crew of Argentine technicians arrived in France on 23 August 1980. The pilots would not arrive until November. They were *Capitán de Corbeta* Jorge Luis Colombo, in charge of the group, as well as *Capitanes de Corbeta* Augusto César Bedacarratz, Roberto Curilovic and Roberto Agotegaray, *Tenientes de Navío* Alejandro Armando Francisco, Luis Collavino and Julio



Third Naval Fighter and Attack Squadron. Standing, from left to right: A. García, J. Barraza, J. Colombo, R. Curilovic, C. Oliveira. Below: B. Rótolo, J.J. Rodríguez Mariani, C. Machetanz, A. Mayora. 17 May 1980. (via Roberto Curilovic)

Héctor Barraza and *Tenientes de Fragata* Juan José Rodríguez Mariani, Armando Raúl Mayora and Carlos Rodolfo Machetanz.

Jorge Luis Colombo was the eldest. He was 38 years old and had dedicated his entire life to the Argentine Navy. He had entered the *Liceo Naval Militar* (the Argentine Navy High School) in 1953, the *Escuela Naval Militar* in 1958 and had earned his aviator wings in 1965, later training in the United States. By then, he was already fluent in English and French.

He was not an easy character, but he was straightforward with his superiors and loyal to his subordinates. Two years later, these personality traits would become exposed.

All the other pilots also had experience in flying and in aircraft carrier operations. The condition for joining the squadron being formed was at least 200 hours of flying time and 30 carrier landings in Douglas A-4Q Skyhawks. Also, the overall average flight hours for pilots was 1,100.

For Captain Colombo, who had participated in the selection of the pilots who would fly the Super Étendards and whom he would lead: "I was very good at what I did. But they were all better than me". In fact, they were some of the best the Navy had, a true elite within an arm (naval aviation) that was also considered elite. Furthermore, the Argentine Naval Aviation is not very big. All the pilots knew each other. According to Captain Colombo:

With some of my pilots we had been flying for 20 years. We flew Macchi and T-28 together. With others we had six years of flying A-4s in the carrier. We were a team that worked. We knew each other.





On 13 March 1981, *Capitán de Fragata* Julio Lavezzo landed at Landivisiau air base, in command of Super Étendard 3-A-203, the first aircraft to be delivered to the Argentinians. He is seen in his flight suit, close to the camera, while the Argentine pilots form together with French officers. (*Segunda Escuadrilla Aeronaval de Caza y Ataque* historical book)



First solo flight of *Teniente de Fragata* Armado Mayora in a Super Étendard, on 16 April 1980. On his right, the commander of the unit, *Capitán de Corbeta* Jorge Luis Colombo, as well as the chief French instructor – *Capitaine de corvette* Paul Habert – on his left. *Teniente de Fragata* Carlos Machetanz still holds the bucket containing the elements that had been poured on Mayora's head. (*Segunda Escuadrilla Aeronaval de Caza y Ataque* historical book)

Throughout November and December 1980, they learned French at the *Centre Interarmées de Formation Linguistique* (CIFL) in Rochefort-sur-Mer. France treated them very well indeed. *Teniente* Julio Barraza recalls:

We travelled the first days of November 1980 and grouped in Paris, where Captain Julio Lavezzo was already waiting for us.

I remember the first evening we had a welcome gathering in his flat where we were able to taste some fine French cuisine. A few days later we were on our way to Rochefort-sur-Mer, a small town on the Atlantic. There we rented flats in a building (*Les Clarins*) which was normally full in summer with tourists. But we were the only ones occupying it at the time. We immediately started an intensive French course with a teacher called Hervé Gallet. He was a nice, bohemian guy. On 18 November a daughter of mine was born in Argentina, and we opened a bottle of champagne to celebrate.

Argentinean pilots were not difficult to recognise. Beyond the extrovert character that betrays any fighter pilot from any country in the world, their leather jackets with the patches of the units in which they had served made them stand out from the crowd. They wore them proudly and practically had them on whenever they were not in their flight suits.

It was not until early 1981 that they moved to *Base d'aéronautique navale de Landivisiau* in Brittany (northwestern France), to begin preparations for flight.

Even with the extensive experience they had, the pilots would be flying a new aircraft in unfamiliar airspace, so their first task was to take the corresponding technical courses and also to familiarise themselves with the area and procedures, flying a few sorties (until each had approximately 20 hours) with the Morane-Saulnier MS 760 Paris of the *Section Reactor Landivisiau*.

In turn, *Capitán de Fragata*

Julio Italo Lavezzo was the one who accepted the aircraft on behalf of the Argentine Navy. He flew 3-A-203 from the factory to the Landivisiau base on 13 March 1981, landing at 1625 (local time). It was the first Argentine Super Étendard. Lavezzo had already received his training in France, at the hands of *Flottille 14F*.

Lavezzo was not unfamiliar to the Argentine pilots. He had been the commander of most of them during the crisis with Chile





*Capitán de Corbeta Jorge "Piti" Colombo celebrates his first solo flight in a Super Étendard on 1 April 1981. Capitán de Fragata Julio Lavezzo, on the right of the photograph, awaits with two glasses for the champagne to be opened. (Segunda Escuadrilla Aeronaval de Caza y Ataque historical book)*

in 1978 in the *Tercera Escuadrilla Aeronaval de Caza y Ataque*. Operating from land and from the aircraft carrier ARA 25 de Mayo with its 17 pilots and 11 A-4Q Skyhawks (never before or since has that squadron had so many aircraft embarked on the carrier), they had carried out both air interdiction tasks and simulated anti-ship attacks, armed with bombs, missiles (AIM-9B Sidewinder) and rockets.

Captain Lavezzo, who was formally the head of the Attack Aircraft Group of the Argentine naval sub-commission in France, was one of the masterminds behind the acquisition of the aircraft and missiles. At this early stage, practically everything related to these new weapon systems had to be overseen by him. In other

words, not only was he the main designer of this plan but he was also executing it.

The five aircraft of the first agreed batch began to arrive rapidly (all delivered by Captain Lavezzo), and by 1 April 1981 all five aircraft were at Landivisiau. They were registered by the Argentine Navy as 3-A-201 to 3-A-205, having been painted at the factory following the colour scheme the Argentine Navy had requested, with their squadron call sign in large white numbers on both sides of the fuselage, the "ARMADA" title at the rear, and the classical "anchor" on top (in white), and below (in black) each wing. The "lora" crest was applied just behind the nose of each aircraft below the cockpit on the port side.

The training contract foresaw a maximum of 50 flight hours per pilot, but the average achieved was 45. Since there were no two-seater versions of the aircraft, it had been agreed that the Argentine pilots would fly the aircraft being delivered, which would be accompanied by a French Super Étendard (all would be from *Flottille 14F*).

Each of the Argentine pilots spent a week practising procedures in the flight simulator and, on 1 April, on the same day that the last aircraft was received, *Capitanes de Corbeta* Jorge Colombo and Augusto Bedacarratz made their first solo flight in a Super Étendard. By 17 April, all 10 pilots had flown the aircraft. The group was progressing quickly and well. They had a great deal of prior training and natural flying skills.

The group of French instructor pilots was led by *Capitaine de corvette* Paul Habert (who had just left the command of *Flottille 14F*) and included *Lieutenant de vaisseau* Josa and Delaboudinière and *Enseigne de vaisseau* Roussin.

*Lieutenant de vaisseau* Ramon Josa, a true legend of the French navy:

We started by having them attend the theoretical courses of the SIT (Technical Instruction Section) ... At the end of the SIT we started



The five Argentine Super Étendards, plus two French Super Étendards, flying in formation near Landivisiau air base, in 1981. (via Christian Larrieu)





Another shot of the same flight of Argentine and French Super Étendards. (via Francisco Kawa)

with the flights, accompanied by sessions in the simulator. The Argentinians had to train in their own aircraft and we followed them in our aircraft. It was contractually stipulated that each pilot was to do fifty hours of flying in France, not a minute more and not a minute less. It was also agreed that we would only train the Argentinians in the handling of the aircraft and in the basic use of the navigation system, the head-up display, the inertial control unit, etc. There was no question of giving them instruction in armament or weapons tactics. We did not make attack flights over the sea, even though

we clearly knew that the aircraft had been sold with the AM-39 Exocet. In the event of an in-flight mishap, weather or technical problem, we were required to land only on a military base.

The Argentine pilots were very competent, both in piloting and mission planning. They all had some combat experience, being engaged in regional operations. They were also very motivated, I particularly remember Augusto Bedacarratz, who would later participate in the destruction of *Sheffield*: he was an excellent pilot, very quick at learning. After only seven or eight hours flying the Super Étendard, he was already manoeuvring the aircraft exceptionally well. Roberto Curilovic told me: "Ramon, watch out for him, because he's quite crazy... For Bedacarratz you're not in training, you're always at war".

Meanwhile, the Argentine technicians (about 40 men, divided into four groups of 10) were trained on the aircraft and were also given basic lessons on the missiles. *Cabo Primero* Carlos Banegas, who was in France, recalls:

In Aérospatiale they sent us to a room to give us the course with the test sets that were installed on the aircraft during ground tests to mimic the missile. We always practised, but nothing ever



The Super Étendard 3-A-203 and 3-A-205 in the holds of the transport *ARA Cabo de Hornos*. (via Claudio Meunier)

worked because where the manual showed one acronym, there was another. So we were not absolutely sure what we were doing, although we did manage to get a general idea of the aircraft & missile dialogue.

The problem was that many of the manuals we received had been written for the older inertial control units of the French Super Étendard, but not for the ULISS 80s that equipped the Argentinian aircraft.

After a pause between 15–27 May 1981 due to the newly elected French government's desire to review arms sales contracts, which was used to organise a football match (the Argentines lost...), training resumed and, from 9 June, Captain Curilovic and Lieutenant Mayora qualified on the aircraft carrier *Clemenceau* (R98), making six deck landings each.

On 30 June, the training flights were completed, and on 6 July the airplanes flew to the 120 Cazaux Air Base in Bordeaux. Days later, the pilots and technicians began to return to Argentina.

Curilovic and Mayora would return to France for a few months to take the aircraft carrier LSO (for Landing Signals Officer) course. Captain Curilovic, it should be noted, had also completed the LSO





Lieutenant General Leopoldo Fortunato Galtieri (then President of Argentina) on the left and the Chief of the Navy, Admiral Jorge Isaac Anaya (behind) reviewing the recently incorporated Super Étendard, on 7 December 1981. Although it is difficult to establish who the pilot with whom they are talking is, it is possible that he is *Capitán de Corbeta* Jorge Luis Colombo. (Gaceta Marinería, Argentine Navy)

course in the United States, as well as operated with the Australian aircraft carrier HMAS *Melbourne*.

In turn, the five aircraft, the five Exocet missiles delivered and the weapons, equipment and tools – totalling more than 200 tons, including 20 of the R550 Magic air-to-air missiles as well as 735 boxes of various spare parts – were loaded onto the Argentine Navy transport ship ARA *Cabo de Hornos* only in October 1981.

On 18 November 1981, the ship arrived at Puerto Belgrano Naval Base – the Argentine Navy's main base, 600km southwest from Buenos Aires – and unloading of the material began.

The reactivated Second Naval Fighter and Attack Squadron finally flew on 7 December 1981 at its usual home base, the Comandante Espora Naval Air Base (BACE), over the heads of Lieutenant General Leopoldo Fortunato Galtieri, President of Argentina, and Admiral Jorge Anaya, Chief of the Navy, both from the *Junta Militar*.

For the winged sailors of the Second Squadron, there was nothing to suggest that there was a war coming in less than four months. Within a few days, however, the annual leave, Christmas and New Year's holidays would begin and the heat of the Argentine summer would arrive. Even so, at a slower pace (as there was no need to rush), activities to fine-tune the newly arrived material would continue.

Just days before the planes arrived, a team of French technicians got there to collaborate and assist to set up some of the weapon's systems. Two of them were from Dassault, led by the young engineer Hervé Colin. Four others were technicians each from SAGEM (for the ULISS 80 inertial control unit), SNECMA (for the aircraft engine), Thomson-CSF (for the Agave radar) and Aérospatiale (for the ATEC test system).

Another technician from MATRA came later (for the Magic air-to-air missiles). The last to arrive would be a second technician from

Thomson-CSF, who would help with the flight simulator that was being installed.

A team of Aérospatiale technicians was supposed to arrive and then begin work on the Exocet missiles and their integration with the aircraft. But this would not happen until later, not before 10 April 1982.

On 16 November, the technicians were summoned to Captain Colombo's office. This was the formal reception and the starting point for the joint work with the Argentine technicians trained in France, as well as the personnel of the *Arsenal Aeronaval N° 2*.

It should be noted that while the squadron (pilots and technicians) were being trained in France, important tasks were being carried out at the Comandante Espora Naval Air Base for the aircraft handover and all the technical advances they brought with them, from hiring more personnel, improving the

depots, to constructing buildings to install the ATEC system. The Naval aviation was getting ready to operate a complex and modern machine. When the aircraft arrived, all this was in place.

December was a very hot month. Activity ended at two o'clock in the afternoon and after that, the pilots, squadron ground crew and French technicians retired to rest at home, most of them in nearby Bahía Blanca city. Afternoon flights were rare, and night flights were even rarer.

The flights were only to familiarise the pilots with the aircraft and the new systems, especially with the operation of the Agave radar in air-to-surface mode and the ULISS 80 inertial system. They could not even exercise in the use of launchable weapons, as only the software for the DEFA cannon had been delivered (the software for dropping bombs would not be received until the end of March 1982). The flight simulator had not been installed either. However, the pilots loved flying their new aircraft.

According to Captain Colombo:

I kept flying all summer. I had a new toy and, in that dreadfully hot summer, I would go out and fly. The hangar would close at 1300 because of the heat, it would be 60° C in there and I would kick my pilots out so they could rest. I would take care of other things there, like opening containers and crates. The Exocets were in a separate room and nobody touched them. I planned to have everything organised by the end of February, not before.

Very close to Espora, at the Puerto Belgrano Naval Base (less than 30 minutes away by car), *Contralmirante* Carlos Alfredo García Boll, Commander of Naval Aviation, was working in absolute secrecy, together with the commanders of the *Infantería de Marina* (Argentine Marine Corps) and the *Flota de Mar* (Sea Fleet). They

had been summoned by the Chief of the Navy, Admiral Anaya, and, in that hot and humid December, they were analysing, at his request and under the supervision of the Commander of Naval Operations, Vice Admiral Juan José Lombardo, the feasibility of carrying out an operation to occupy the Malvinas/Falklands.

García Boll was 52 years old. He had entered the Naval Military School in 1947 and won his naval aviator wings in 1952. He had therefore been a naval aviator for almost 30 years and, moreover, this was not his first war action.

On 16 June 1955, the then *Teniente de Fragata* García Boll, in command of a North American AT-6 Texan, took part (with 30

other aircraft) in a bombing raid on the city of Buenos Aires, in an attempt by sectors of the Navy and Air Force to overthrow General Juan Domingo Perón, President of Argentina.

The military actions went on for several hours, including the shooting down of one of the naval airplanes by a Gloster Meteor loyal to the government, as well as the loss of another to anti-aircraft fire. The violence of the bombing left more than 300 civilians killed, but failed to depose Perón. Only months later he would relinquish power.

As García Boll worked on the plans, the year 1981 was drawing to a close.

### 3

## FROM THE BEGINNING OF 1982 TO THE FIRST HALF OF APRIL: DRUMS OF WAR IN THE SOUTH ATLANTIC

1982 began without a hitch. In the Argentine Naval Aviation, only its commander was aware that there was a plan to occupy the Falklands/Malvinas, which was submitted to the Commander-in-Chief of the Navy, Admiral Anaya, at the beginning of January. As Rear Admiral García Boll stated:

In that first assessment, which was completed at the end of January 1982, we concluded that the operation to occupy the Malvinas was suitable, feasible and acceptable. Only occupation; we did not analyse other enemy's capabilities. We immediately began to receive directives about the operation: that it should be joint and, subsequently, that it should be bloodless as far as possible.

As soon as Anaya received this information, he ordered the planning to continue, now incorporating a general from the Argentine Army and a brigadier from the Air Force.

Once the advanced plans were finalised, they were submitted for consideration to each member of the Military Junta, who approved them at the end of February. It was also considered that the landing on the Falklands/Malvinas could not be carried out before mid-May 1982, and Anaya specifically considered that, to carry it out, MPA (Maritime Patrol Aircraft) such as the Lockheed P-3 Orion – the purchase of which was being negotiated in the United States – and all the Super Étendard aircraft were needed.

Nonetheless, all these plans were merely hypothetical, in the event of the failure of the diplomatic talks underway and with the sole idea of occupying the islands and then continuing to negotiate from a position of strength.

However, the crisis that began on 19 March 1982, with the scrap merchants landing on South Georgia/Georgias del Sur, brought all this planning into sharper focus. The alternative, it seemed, became the only option, especially when the Military Junta became convinced that a British nuclear submarine (HMS *Superb*) was heading for the islands. In total secrecy, the decision was taken to begin the boarding and departure of the Landing Force for the military operation in the Falklands/Malvinas.

However, for the Second Squadron this did not seem to be a problem that would affect them. They would not be taking part in the so-called "Operation Azul" (later known as "Operation Rosario"), so no one informed them in advance of what was going to happen.

The Argentine fleet had sailed on 28 March and was expected to land in the Falklands/Malvinas on 1 April (postponed by one day due to bad weather en route). On 30 March, the landing being imminent, Rear Admiral García Boll summoned *Capitán de Corbeta* Colombo and told him "Tomorrow we land on the Malvinas". Overcoming the initial astonishment that this provoked, García Boll ordered:

To report on their ability to operate on a 1,200 meters runway, such as the one on the Malvinas. I ordered them to cancel their entire weapons training programme and give priority to Exocet missile training. I gave them 30 days' notice.

By this time, the squadron pilots had about 80 hours of flying time each. Already the next day, 1 April, they were working on what they had been asked to do.

Shortly after several practices, and a visit by some NCOs of the squadron to the Falklands/Malvinas, which had been in Argentine hands since 2 April, the squadron informed the naval aviation commander that, with a missile and extra fuel tanks, the planes could land at Stanley/Puerto Argentino airport, but only with a dry runway and with a very small margin of safety.

With a wet runway, landing was impossible. Also, as far as take-offs with extra tanks and a missile were concerned, it was possible but very risky. It was therefore clear from the outset that there would be no operations from the islands, except in the event of an emergency landing.

To this end, from 26 April, an arrestor cable was placed at the eastern end of the runway. If A-4Qs and Super Étendards could land on an aircraft carrier, they could also land there *in extremis*.

Yet, the biggest problem remained unsolved: how to make the Exocet missile work and end up hitting a ship. And how to get the planes to launch them without being detected and shot down. A huge problem to be solved in the midst of a war that was just beginning.

Both problems had to be worked out in parallel, to comply with the Naval Aviation Command's order to be able to operate efficiently within 30 days with the new missiles. Argentine technicians had not received sufficient training in France to enable the Super Étendard to launch the Exocet missiles. While the missiles and aircraft were there, as well as the documentation, no one knew how to make it all



work, i.e. how the aircraft would communicate with the missile to pass on the information necessary for a successful attack. But the squadron did have the test sets that simulated the missile and could be attached to the aircraft, the full use of which would be explained by Aérospatiale personnel arriving on 10 April.

The least they could do was to try, even though the Navy commanders initially thought (and quickly discarded) that it would be better not to touch the machines and missiles and thus take them out of warranty.

At that time, the Super Étendard 3-A-202, was selected to test the missile. It was also decided that 3-A-201 would remain as a source of spare parts for the other aircraft, so it would not take part in the conflict and would only return to service, with a lot of work, after the war. Therefore, 3-A-202 was installed in a hangar and the famous test sets were fitted. As *Cabo Banegas* recalls:

The test set was connected to the navigation unit, which had little windows with wheels where, as you moved them, numbers would appear as if they were on a padlock. They were combinations and that was what we had to find out.

The Argentine technicians made slow progress to complete all the steps. It was not an easy task.

Three of the French technicians, from 9 April onwards, collaborated with the Argentinians. This was no small matter. France had decreed an arms embargo on Argentina a few days earlier (on 6 April) and the mission to help install the Exocets had therefore been suspended.

On the evening of 7 April, one of the British Embassy's military attachés in Paris was received in person by the French Defence Minister, Charles Hernu (who resigned years later over the scandal of the bombing of the Greenpeace ship *Rainbow Warrior*), who told him that "we will do all we can to help you in terms of information since we are on your side", ratifying the commitment made by President François Mitterrand to British Prime Minister Margaret Thatcher during a telephone conversation on the afternoon of 3 April.

After this introduction, the British official was taken to another room by two senior civilian servants and invited to ask questions. Among several questions concerning French materiel sold to the Argentines, he specifically asked: "How many Super Étendards are modified to carry the AM-39; how many missiles do they have and what is their operational status". The British official stressed that all information provided would be treated with the utmost discretion and that its source would not be revealed.

Despite that, the French technicians had not been called home by France. The Ministry of Foreign Affairs considered that the generic instructions, given to any Frenchman on a similar mission, "not to assist countries involved in armed conflicts", were enough. For commercial reasons (as France formally explained to Britain after the conflict) those technicians had remained in Argentina, but with instructions to stay put. This had not been the case. None of the technicians even remembered receiving such instructions.

Hervé Colin of the Dassault-Breguet group, Pierre Guiminot of Thomson-CSF and Christian Larrieu of SAGEM volunteered to work on the aircraft and missiles. They worked long hours on them. According to Christian Larrieu, who had spent the first days of April 1982 installing electronic systems on the Argentinean aircraft carrier:

On 9 April I returned to Espora and spoke to Colin and Guiminot, who explained that they had gone to see Colombo to offer their services. After the announcement of the cancellation of the Aérospatiale engineers' mission, following the embargo decreed by President Mitterrand, Colin and Guiminot invited me to see Colombo to offer my services too. I spoke personally with Colombo in his office. Dassault was not very familiar with the new ULISS 80 inertial system and they were counting on me.

Also, the pilots Machetanz and Rodríguez Mariani, who had attended the Exocet missile courses at Aérospatiale, were there. With them, there was also a specialist weapons officer.

The Argentines had Aérospatiale's technical and procedural manuals for validating the firing of the Exocet missile. We had our own personal technical notes which provided some help.

The entire missile test installation was done including the missile launcher test case, the parameter and firing cables, the ARINC case, the pilot's box, the Exocet mock-up under the right wing and the 1,100-litre tank under the left wing.

The three of us were seeing these manuals for the first time. It was a tedious job of reading, understanding what was being read, exchanging with the two pilots what they had understood or retained. We tried, we tried to do what the manuals explained, we tried again... and step by step we began to understand how the tests had to be done and what the results we had to see were like. In fact, the aim of the tests was to simulate a flight and put the aircraft in a condition to launch the missile. The different firing phases had to be explored and validated.

Once the launch signal had reached the missile during the simulated flight, the aircraft/missile duo was validated for firing.

With all this, it was possible to establish confidence during the 3-A-202 ground trials that the Exocet would be effective, and a procedure manual was written for installing and firing the missile.

It had been an arduous task, with sleepless nights working above and under the aircraft. It took a lot of imagination, trying to understand by trial and error how an electronic system that was new and unknown in the Argentine naval aviation worked. But the effort had finally paid off.

Although there were some rumours of a disgruntled French technician who had sent the Argentine mission in Paris some of the codes needed to launch the missiles, this is only half true. Indeed, in early April, a middle-aged man presented himself to the Argentine officers of the Purchasing Sub-Commission in France, where Captain Lavezzo was still working. He said that he worked for Aérospatiale and, as he had been unfairly dismissed, he wanted to take revenge by giving the Argentinians information related to the armament set-up on the Super Étendard. The information was found on loose sheets of paper in a suitcase.

In an operation worthy of a spy movie, on the understanding that the phones were tapped and that the Argentines were under surveillance by the French and British secret services, an *Aerolíneas Argentinas* pilot (a former naval pilot) was contacted, who agreed to discreetly remove the documentation and take it to the Argentine Navy headquarters as soon as he disembarked without asking any more questions.

The information reached Espora shortly afterwards. However, it was useful only for the purpose of dropping bombs from the aircraft and therefore had no influence on the events of the conflict.

By the afternoon of 11 April, all four available aircraft were ready to attack with the Exocet missile. At least in theory. Captain Colombo's problems seemed somewhat solved. That same day,





The cover of the *Guide du Pilote* of the SAGEM ULISS 80 navigation and attack system, in its April 1982 edition. The Argentine Super Étendard, at that time, was the only aircraft to carry this modern system, composed of three subsystems: the navigation and attack unit UNA 80, the command and navigation system PCN 80 and the exchange and control unit UEC. (SAGEM)

a secret report reached the British Foreign Office, indicating that knowledge had been obtained through “unofficial intelligence” (whatever that means) that French technicians were collaborating with the Argentines to get the missiles to work on the planes. Amid other contradictory reports, it was not given much importance.

Rear Admiral García Boll, meanwhile, had to deal with the organisation of Naval Aviation for the war.

At the beginning of 1982 the Naval Aviation Command (COAN: *Comando de la Aviación Naval*) was an integral part of the Argentine Navy and had 97 aircraft assigned to it (between airplanes and

helicopters), 85 of which were in service. Naval aviators numbered around 160 and flew about 28,000 hours a year.

It was not until 12 April that the Schematic Plan 1/82 of the South Atlantic Operations Command (COATLANSUR) was enacted, organising the Army, Air Force and Navy forces, and appointing Vice Admiral Juan José Lombardo as commander of the South Atlantic Theatre of Operations (TOAS).

Considering the directives issued in the Plan, the COAN enacted, on 15 April, Operations Plan N° 02/82, thus creating Task Force (FT) 80, under the command of Rear Admiral García Boll himself, who would conduct the operation from the Comandante Espora Naval Air Base (BACE), the main naval aviation base, and would report directly to Vice Admiral Lombardo. Most of the Argentine Navy’s naval aviation assets would be part of Task Force 80 (FT 80).

The main deployment would be at the Almirante Hermes Quijada Naval Air Base in Río Grande, on Tierra del Fuego Island, although naval aviation would also be deployed to the air bases of Ushuaia, Río Gallegos, Comandante Espora and Ezeiza (the international airport near Buenos Aires). And, of course, also to the Falkland/Malvinas Islands.

The Operations Order stated, among other issues, that the British submarines had arrived in the area by mid-April and that the first ships would arrive on 23 April, but that the conflict with Chile could not be neglected either.

The mission of FT 80 would be to “Locate, wear down, neutralise and/or destroy enemy units at a favourable opportunity and support the requirements of its own Mobile Logistic Support in order to consolidate the reconquered islands, prevent its recovery by the opponent and support the actions of the Military Government”.

It was established that targets to attack in order of priority would be:

- 1) Aircraft Carriers
- 2) Transport and Logistics Ships and
- 3) Guided-missile destroyers (DDGs) and frigates (FFGs)



## Task Force 80: *Contralmirante* Carlos A. García Boll

### Insular Task Group (TG 80.1) *Capitán de Navío* Héctor A. Martín

#### First Naval Attack Squadron



*Capitán de Corbeta*  
Carlos Molteni  
15 Aermacchi  
MB-326 / MB-339

#### Naval Aviation School



*Teniente de Navío*  
José Pereira Dozo  
11 T-34C

#### Naval Recon Squadron



*Capitán de Corbeta*  
Fernando Sola  
4 BE 200 / 2 BE 80F

#### Naval General Purpose Squadron



*Capitán de Corbeta*  
Eduardo Figueroa  
3 S-2A / 3 BE 80  
3 PL6

#### Coast Guard



*Prefecto*  
Pedro Gomez  
4 Skyvan  
3 SA-330

### Exploration Task Group (TG 80.2) *Capitán de Fragata* Luis C. Vazquez

#### Naval Exploration Squadron



*Capitán de Corbeta*  
Julio Perez Roca  
2 P-2 / 2 BE 200

#### Naval Antisubmarine Squadron



*Capitán de Corbeta*  
Héctor Skare  
5 S-2E / 2 EMB-111

### Attack Task Group (TG 80.3) *Capitán de Fragata* Jorge M. Czar

#### Second Naval Fighter and Attack Squadron



*Capitán de Corbeta*  
Jorge Colombo  
4 Super Etendard

#### Third Naval Fighter and Attack Squadron



*Capitán de Corbeta*  
Rodolfo Castro Fox  
8 A-4Q

#### First Naval Helicopter Squadron



*Capitán de Corbeta*  
Augusto Rivolta  
4 Alouette III

### Mobile Logistics Support Task Group (TG 80.4) *Capitán de Navío* Jorge Vidolza

#### First Naval Mobile Logistics Support Squadron



*Capitán de Corbeta*  
Luis C. Lupori  
2/3 L-188

#### Second Naval Mobile Logistics Support Squadron



*Capitán de Corbeta*  
Norberto U. Pereiro  
2/3 F-28 / 1/2 BE 200

The Second Naval Fighter Attack Squadron (known as EA32 in the Argentine Navy's four-digit communications scheme) would take part in the Attack Task Force 80.3 (FTA 80.3), along with the eight Douglas A-4Q Skyhawks of the Third Squadron (EA33) and four Aérospatiale Alouette III helicopters of the First Naval Helicopter Squadron.

While the Task Force 80.3 commander was *Capitán de Fragata* Jorge M. Czar, the Super Étendard squadron received instructions directly from García Boll in Espora.

As Captain Colombo recalls:

4

## FIRST HALF OF APRIL: HOW TO DESTROY A MISSILE-DEFENDED TARGET

As was mentioned earlier, the training in France had not analysed the use of the aircraft's weapons, hence attack tactics had to be hastily developed to use the Exocet missile.

According to Captain Colombo:

France was very expensive. We only did what was planned. We didn't fly on our own; the French instructors always came with another aircraft and that cost money. That's why we could only afford the basics of the aircraft and the Exocet, which is also the last thing the French learn, both in the simulator and in the air, as it is the most complex part. The French consider that, in order to launch Exocet, you have to be a section leader with at least 200 hours of Super Étendard flight time.

However, the pilots had been able to observe, albeit not in depth, the tactics used by the French, which served as a starting point. As the Commander of Naval Aviation, Rear Admiral García Boll, reported:

We were totally unaware – we and the rest of the world – of how a real medium-range missile launch operation was carried out. So, the little that our crews in France had been able to appreciate ... consisted of a Maritime Patrol Aircraft (MPA) detecting the target, indicating its position and maintaining contact. The Super Étendard would go, the MPA would update the position of the target to the Super Étendard and the latter would launch the Exocet. This update of the target's position, according to the little we had picked up in France, should not differ by more than ten miles from the exact position of the target, because the Super Étendard's radar is an attack radar rather than a search one.

With this basic information they set to work.

They knew little about the aircraft, missiles and tactics, and even less about the real capabilities of the British fleet. After the war, Captain Colombo complained that he had only received three folders of generic enemy data and that he had got most of the useful information through informal Air Force channels.

There was, however, at least one considerable advantage: having two ships similar to the more dangerous enemy Type 42 destroyers, the ARA *Hércules* and ARA *Santísima Trinidad*, armed with Type

The FT 80 General Staff was in a special room which they had set up in the naval aviation command. Through an encrypted communication system, orders came from there; sometimes with Lombardo's approval and sometimes without it.

The Southern Air Force (or FAS/*Fuerza Aérea Sur*), under the command of Brigadier Ernesto Crespo, was also organising and deploying its air assets, already thinking that the Super Étendard would fall under his command. This never materialised. Relations between the Navy and Brigadier Crespo, who was based in *Comodoro Rivadavia*, were strained during the conflict.

965 long-range radars (not to mention that the Type 42 batch 2 HMS *Exeter* had the much better Type 1022) and the GWS-30 Sea Dart surface-to-air missile.

It was therefore known that the range of the 965 radar was 200 nautical miles, and that the Sea Dart missile could hit a high-flying target at a maximum of 40 miles, as well as about 24 miles at low altitude.

Between 4 and 7 April, *Capitanes de Corbeta* Roberto Agotegaray and Alejandro Francisco met with the commander and staff of the ARA *Hércules* to discuss the best tactics for attacking a Type 42 destroyer.

The ARA *Hércules*' Operations Officer, *Capitán de Corbeta* Guillermo Delamer, recalls:

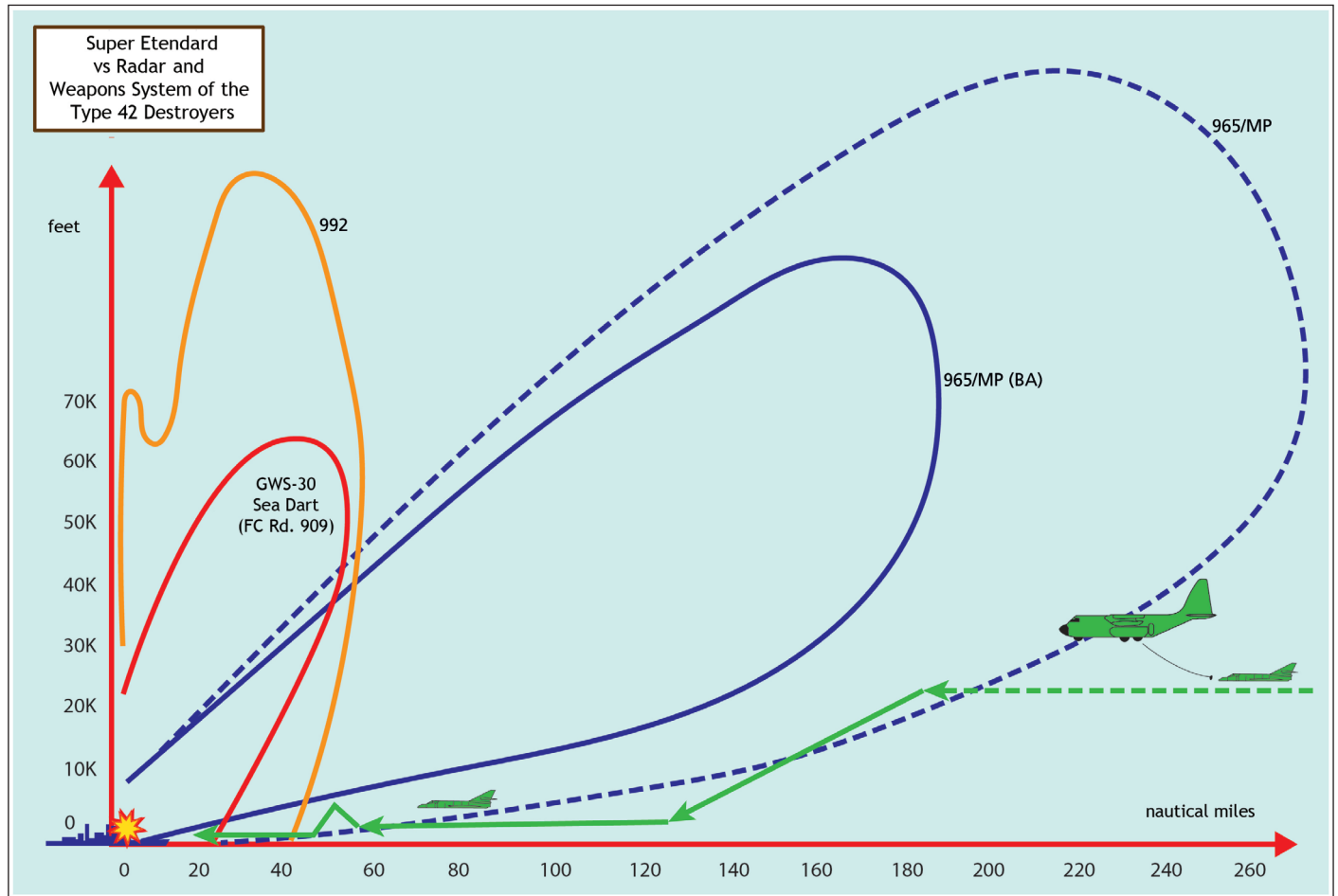
Diagrams of the 965 and 992 radar lobes were displayed in the Officers' Mess and carefully analysed. The flight profile on the approach to the target was to be "High-Medium-Low" on the attack and "Low-High" on the egress, to achieve the greatest possible flight range. As the aircraft approached the datum, where it was expected to detect the target to be hit, it had to descend to avoid the detection lobes of the 965 radar and, closer to it, that of the 992.

Furthermore, in addition to studying the theory of the ships' systems, personnel were assigned to them (on 12 April, *Teniente* Mayora was embarked for two days on the destroyer ARA *Hércules*), and on 15 and 16 April attack practices were carried out on the Navy's Type 42 destroyers.

Captain Delamer recalls again:

The attack tactics were tested empirically, with the ship sailing to El Rincón (south of the province of Buenos Aires) and carrying out exercises with the four available aircraft and all the pilots of the "Super" Squadron. The flight profile was tested and adjusted. Similarly, the detection aspect of the aircraft's radar emissions was checked, which should be only a few seconds, enough to adjust the datum they had in their flight computers with the current position of the target and launch the missile without being detected by the Decca RDL 2 ABC ESM that we had on board.





The priority of the squadron was to take the enemy by surprise, which would be achieved by: 1) Avoiding enemy radars, 2) Avoiding the use of radio or any other electronic emission, which could be intercepted and 3) Approaching to launch the missile from an unexpected axis.

According to Captain Colombo:

We based the success of our attacks on two premises: discretion and surprise, but discretion above all. We were the dwarf who was going to attack the giant on our toes, on a dark night and from behind. Not from up front.

With all this information, Colombo finally designed (together with the squadron's Operations Officer, *Capitán de Corbeta* Agotegaray) a mission profile that seemed to be the most appropriate. This considered radar detection lobes and, of course, the curvature of the Earth itself. Sneaking under that detection lobe would enable them to get within missile-launching distance and escape quickly.

Also, by flying in electronic silence, with no TACAN, IFF, Radar, VHF emissions and minimal and essential UHF communications, they would also avoid giving away their presence electronically.

Radio silence was not a problem either. The Argentine naval pilots knew each other well and flew together regularly. The wingman could even anticipate what the section leader would do.

It was clear to the Argentines that early detection of the Super Étendard would spoil the mission, both because the targets would be alerted (and with weapons ready to repel them), and because interceptor aircraft could be directed from the ships to destroy them far away from the fleet. Or the missile could be neutralised.

But, first of all, as early as 8 April, it was decided that they would fly in pairs and that the pairs would not be changed. This would

allow for better training. The section leader would always be an experienced pilot and the wingman, a less experienced one.

Captain Colombo's original idea, when leading from the front, was to be on all the missions. According to *Teniente* Mayora:

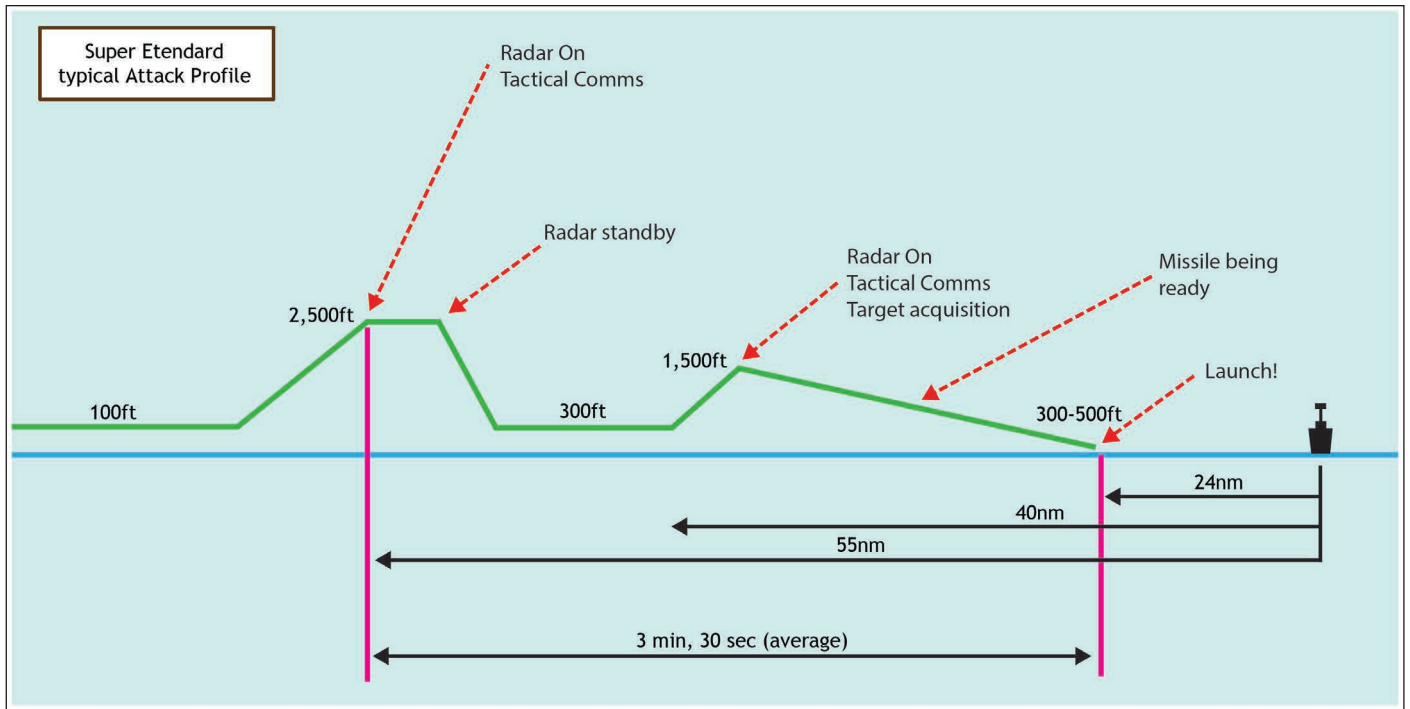
"I'm going to fly until I get shot down" said Captain Colombo, for whom we had great professional respect but also in whom we had great trust having lived in France for a year. Having done all the training together, many of the officers having shared almost our whole career with him, we said "well, you're going to be on your own, we'll go and come back when you're shot down".

A gentlemen's pact was then made among the 10 pilots of the squadron. Captain Colombo would fly the first mission, but from then on, the assigned pairs would take turns.

If the mission was aborted before the wheels were off the ground, the pair would continue and keep their duty turn. Nonetheless, if they took off, even if the mission was immediately aborted, they lost their turn and had to wait for the others to take their chance.

The pairs, finally, were made up of:

1. *Capitán de Corbeta* Colombo and *Teniente de Fragata* Machetanz
2. *Capitán de Corbeta* Bedacarratz and *Teniente de Fragata* Mayora
3. *Capitán de Corbeta* Agotegaray and *Teniente de Fragata* Rodríguez Mariani
4. *Capitán de Corbeta* Curilovic and *Teniente de Navío* Barraza
5. *Capitán de Corbeta* Francisco and *Teniente de Navío* Collavino



The flight profile that was envisaged was simple. As it would be impossible to operate from the runway near the capital of the islands, it was decided that any mission should start from the mainland.

In theory, the aircraft section (always flying in pairs, without any escort) was to fly at altitude (21,000 feet) after take-off, until meeting the tanker at a distant point from any British threat (and about 250 miles from base). This altitude was considered the best for operating with the KC-130H Hercules of the Argentine Air Force, considering the characteristics of both machines. Refuelling was to be carried out for 30 nautical miles. A refuelling aircraft was necessary to be able to reach the British fleet, which supposedly would not get close enough to the Argentine mainland.

Although no one had ever practised with Air Force tankers (nor, for that matter, tested how a Super Étendard refuelled), most of the squadron members were trained in this type of activity, as the naval aviation Douglas A-4Qs usually refuelled from other similar aircraft, which had among their equipment the Sargent Fletcher 31-300 pack. Practices with the KC-130Hs were carried out from 10 April at Espora, all of which were successful.

From there, with full fuel tanks, the final phase of the attack would begin. At 200 miles from the target they were to begin the descent, reaching 15,000 feet at 150 miles and starting to fly very low at 130 miles from the target.

The final approach to the target was to be made at about 100 feet and 450 knots and, at about 55 nautical miles from the estimated position of the target, the electronic and radio silence was to be broken, raising the aircraft to 2,500 feet to issue three sweeps with both radars, each radar at a different scale (the leader at 80 nautical miles, the wingman at 40 miles). This would provide a clear picture of the situation, bearing in mind that the 40-mile scale radar mode has more discrimination.

Both pilots, at this point, were to communicate (via UHF) what they saw on their radar screens and, having achieved this, put the radars on standby and return to low level.

The second climb to issue three radar sweeps was to be made about 40 miles from the target, both aircraft broadcasting with a 40-mile range. To do this, they were to climb to about 1,500 feet, leaving the nose of the aircraft slightly up, to give the radar more range.

Captain Francisco explains this moment of the attack:

With the radar at 40 miles, the missile launch phase begins. The Super Étendard has, on the left console, a sidestick, which, when moved, moved a cursor on the radar screen. Then, you had to put the cursor on the target you wanted to launch the missile and press a trigger. As soon as the trigger was pressed, the radar locked onto the target and began to pass information to the missile about the direction and distance to the target. Once this operation was completed, the missile firing circuit was enabled, whereby the missile inertial navigator received information from the aircraft inertial platform, which is why the aircraft had to be flown smoothly, with turns of no more than 10° of wing tilt.

Then, after these three sweeps, the radar stopped transmitting, since communication between the aircraft and the missile would not require the radar to be operating, as Captain Colombo mentions:

If a target was locked on, to make life miserable for the British, the radar was put again on stand-by, since the targeting problem was automatically solved by the inertial navigation system.

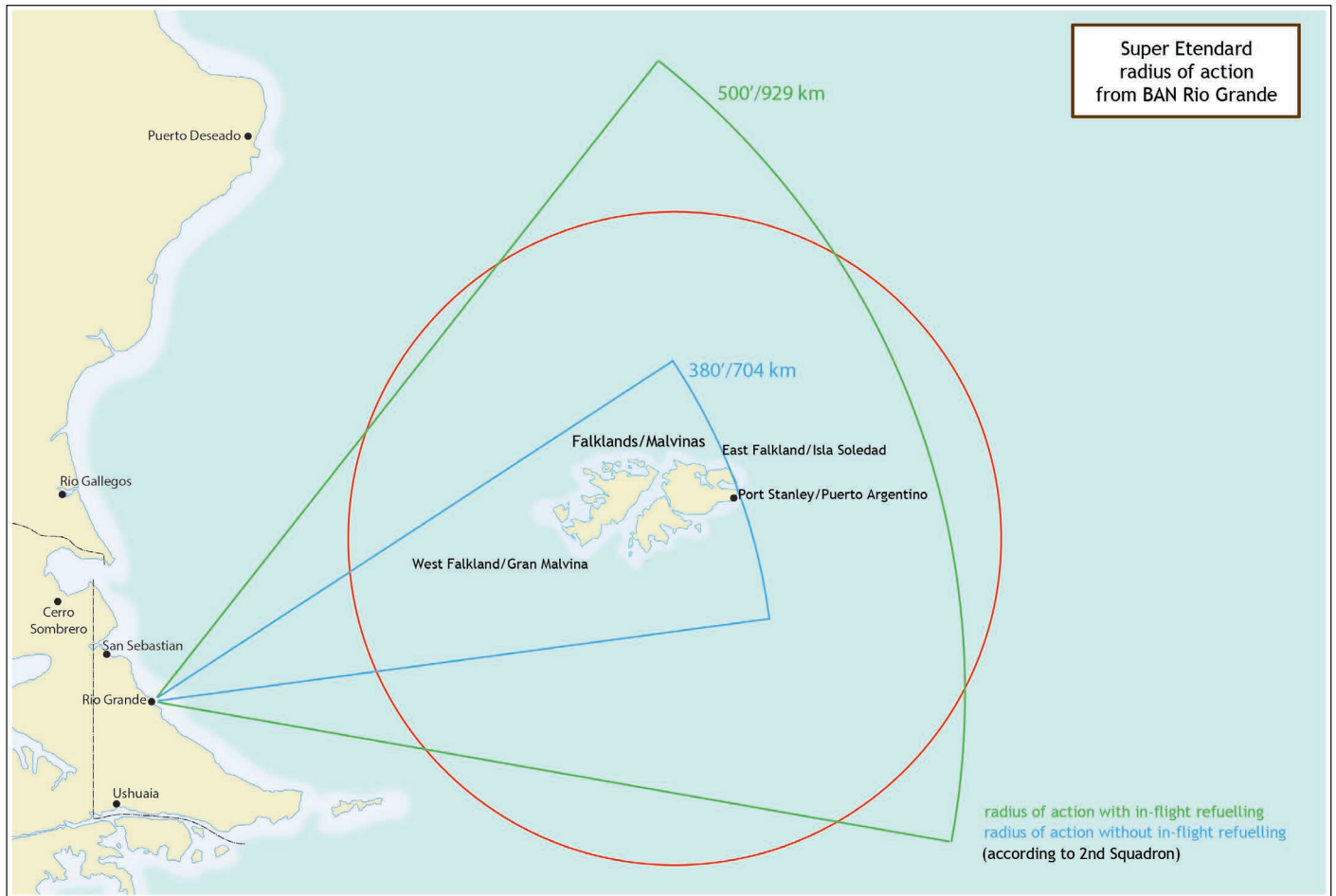
With the target locked and the missile fed with the necessary data for firing, each aircraft would launch the missile, the aircraft being at about 500 feet, as it was known that the AM-39 Exocet drops about 300 feet before starting its rocket engine, for the aircraft's own protection.

While the Exocet had a max range of about 38 miles and a minimum firing distance of 12 miles, the decision was made to launch at just over 24 miles to ensure maximum hit possibilities, while avoiding the envelope of Sea Dart missiles.

The missile was always set with the biggest search cone. According to the squadron commander:

We always fired with wide settings. What mattered to me was that we hit something.





If everything went according to plan, it would take three and a half to four minutes from the time the attack became apparent (i.e. when the planes were climbing for the first radar search) to the escape.

Such a short time would, in any case, prevent the carriers from launching a Sea Harrier or, if they did, they would have no chance of intercepting aircraft flying away at high speed. This made the operation relatively safe for the naval aviators, as well as maximising the chances of achieving the expected surprise.

The Squadron's Operations Officer, Captain Agotegaray, always insisted on compliance with the imposed tactics, for more than valid reasons.

If we were intercepted by Sea Harrier aircraft, since they had detected us beforehand, we were to jettison all external stores, including the Exocet and make our way back to the mainland at the highest possible speed. We could not afford to lose the missiles in any case, so it was imperative that we were not detected early.

The post-attack escape was to be made at a low level, flying at 550 knots for 50 miles, then reducing to 450 knots for another 50 miles and, away from the enemy, climbing to an altitude of at least 37,000 feet or more, considering the remaining fuel.

This gave a total combat range of about 930 kilometres (500 nautical miles).

It was also argued whether one or two missiles should be launched per mission. Captain Colombo was originally of the opinion to be careful with the missiles, so only one missile should be launched per mission. However, in discussions with the other pilots, he became convinced that only the launch of two missiles, under favourable conditions, ensured success.

That is, according to the information provided by the manufacturer and the Argentine Navy's own probability statistics, the launch of a single missile implied a 90 percent certainty of impact, while the launch of two ensured a 98 percent. Therefore, to guarantee hits, the squadron decided that each aircraft would take off with one missile, and that both would be launched at the same target.

Of course, all this presupposed good information on the target, which it was thought would be obtained primarily from a reconnaissance plane, preferably one of the two ageing Neptunes they had, because of their long endurance and radar range.

It also implied that the Super Étendard would operate alone, without any escort. This led to some questioning days later, by the Argentine Air Force, which insisted that these flights be accompanied by Dassault Mirage III or IAI Dagger aircraft (the "Israeli" copy of the Mirage V) armed with air-to-air missiles.

Nevertheless, in the squadron commander's view, this would compromise the mission profile, both because he considered that Air Force radio communication procedures involved more talk, and because he understood that many aircraft, with different flight profiles, would make radar detection of the incursion possible. Quite the opposite, of course, to the assumptions that had been made for mission planning. Therefore, despite the Air Force's insistence, its fighter aircraft were not included in the planning of Exocet anti-ship missions.

This whole theory was tested jointly for the only time on 15 April, at the insistence of Captain Colombo, who indicated that he would not deploy to the south unless the plan was fully tested. It had been practised partially before, without refuelling and without MPA support, both on its own destroyers and on cargo ships that were entering or leaving the civilian port of Bahía Blanca.

On that day, a practice mission was carried out with a section of aircraft (Captain Bedacarratz and Lieutenant Mayora), which departed from the Comandante Espora base, was refuelled from a KC-130 tanker 250 nautical miles away and, finally, a simulated attack was made on the destroyer ARA *Santísima Trinidad*, which was some 230 miles away from the refuelling aircraft. All this, with the collaboration of a Grumman S-2E Tracker aircraft from the Naval Antisubmarine Squadron, which detected the destroyer and informed the attack squadron, passing its final position 15 minutes before the practice launch.

The attack plan, in theory, worked according to Captain Colombo’s desire. But it was only theory and there were many sceptics that the Super Étendard could survive the war.

Lieutenant Armando Mayora, who was on board one of the Type 42 destroyers used as a “target”, recalls:

I boarded ARA *Hércules*, to see how far away the airplanes were detected. The day I disembarked from the *Hércules*, the commander said to me: “Best of luck, I don’t know if we’ll see each other again”. It sounded very dramatic to me, but later I concluded that he was more aware of what was to come.

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## FIRST HALF OF APRIL: DEFENDING AGAINST MISSILE ATTACK

The British had the flip side of the same problem: how to prevent a Super Étendard aircraft from getting into firing position to launch an Exocet missile, as explained by Lieutenant Commander David Sayer, Air Warfare Officer (AWO) of the frigate HMS *Plymouth*:

Our aim was to take out the attacking aircraft before missile release; ideally on the runway or, when airborne, with our Sea Harriers. If the incoming missile was seen on radar (unlikely), we would engage with Sea Dart, then Sea Wolf/Seacat and guns. Once the missile head went active, our ESM would detect the radar and the detecting unit would issue a ZIPPO call to the force.

All ships would fire their three-inch chaff rockets (‘chaff delta’) and alter course downwind to keep the chaff pattern between the missile and the ship. I think our understanding of this fairly basic version of the missile is that it would lock on to the first target it saw on its left-hand sweep and be decoyed by a larger chaff echo.

According to British doctrine, therefore, one would first try to destroy the aircraft, either on the runway or in flight and, if that was not possible, try to destroy the missile with guns or anti-aircraft missiles. If all else failed, there remained the option of trying to draw the missile away from the target by launching a cloud of chaff

(the small sheets of aluminium that cause a large echo on radar) to confuse it.

None of this was easy due to political or technical problems. Attacking aircraft on the mainland was not easy and would be a major political problem. It was attempted but failed as soon as it began (Operation Plum Duff /Mikado, the plan to attack Río Grande in mid-May) or was aborted before it started (Operation Kettledrum, the plan for a raid on Puerto Deseado in early June).

Interception of the Super Étendard was very difficult without an efficient airborne early warning system.

However, based on an exercise coordinated months earlier, but now of vital importance, an engagement was conducted between Harriers of No.1 (Fighter) Squadron and two French Mirage III BEs of the *Armée de l’Air*, which arrived on 22 April and operated from RAF Coningsby on that day and the following day. French *Aéronavale* Super Étendard aircraft were also involved in the training, but did not land in the UK, to prevent prying eyes from noticing their presence.

The best option was to position a Westland Lynx HAS.2 helicopter (based on the destroyers and frigates) on the threat axis at some distance from the ships (40, 60 or 80 nautical miles), so that with its Racal MIR-2 Orange Crop electronic surveillance equipment it

Table 2: Royal Navy Air Defence Missiles							
Missile System	In Service	Launch Weight (lb)	Speed	Operational Range (nm)	Flight Ceiling (ft)	Guidance	Platform (DD & FF Class)
Sea Dart (GWS-30)	1973	1,210	Mach 3.5	40	60,000	Semi-active (Type 909 radar)	Type 42, Type 82
Seaslug Mk 2 (GWS-2)	1961	4,409 (with booster)	Mach 1.8	17.3	50,000	Beam riding (Type 901 radar)	County
Seacat (GWS-24)	1962	143	450 knots	2.7	9,800	Radar (Type 912) and secondary CCTV	Type 21, Rothesay (GWS-20), County (GWS-22), Leander Batch 2 (GWS-22)
Sea Wolf (GWS-25)	1979	180	Mach 2.0	3.2	9,800	Radar (Type 910) and secondary CCTV	Type 22, Leander Batch 3





Two British Aerospace Sea Harrier FRS.1 from 801 Naval Air Squadron (based on HMS *Invincible*) on combat patrol near the Falkland/Malvinas Islands. An AIM-9L Sidewinder missile is clearly visible on the aircraft furthest from the camera. The Sea Harrier operated with the Fleet Air Arm (Royal Navy) since 1979. (Crown Copyright)

could detect the Agave radar emission at some point in advance. The warships also had this capability, and their equipment was believed to be much more sensitive than that of the Lynx.

But both had to wait for the radar broadcast, which happened only at the last moment of the attack. Radar detection was complicated by what was expected to be the low altitude flight of the Argentine aircraft.

Detection of the Exocet missile once launched was also difficult. It was considered that a Type 965 radar (such as those on the Type 42 or County-class destroyers) could not detect this missile, a Type 1022 radar (such as that on the Type 42 batch 2 destroyer HMS *Exeter* or the aircraft carrier HMS *Invincible*) would detect it at 13.3nm (24.6km) and the Type 992 radar (present on many of the naval units) would detect it at 13.8nm (25.5km). There would not be much time to react.



The Type 42 batch 2 (D89) destroyer HMS *Exeter*. (US Navy)





HMS *Invincible*'s radar operators looking at a tactical display. There were four of these in the *Invincible* but only three were manned for most of the time. (Royal Navy)

Given the speed of the Exocet and the detection distance, there was about 30 seconds to launch a Sea Dart missile against it (which implied a full alertness level, as it normally took almost a minute to make a proper launch) and, even if everything worked perfectly, the Sea Dart had only a 25 percent chance of hitting and a 44 percent chance if two Sea Dart were launched simultaneously.

Derek Hart was a Lieutenant serving as the Weapons Section Officer of HMS *Invincible*, and after the conflict specialised in Sea Dart missiles, so his explanation of how the system worked is invaluable:

Guided Weapons System Mark 30 (GWS 30) consisted of two large Type 909 fire control radars, clearly visible under radomes at the front and rear of the island superstructure, the computerised fire control system (part of the ship's Action Data Automated Weapon System, or ADAWS) a twin beam missile launcher at the front of the flight deck and a magazine containing up to 20 Sea Dart missiles.

The system was designed in the 1960s as an area air defence weapon during the Cold War and was mainly intended for use against high-altitude targets at long range, such as Russian Badger and Bear bombers approaching the UK. It was to be fitted to a new class of Guided Missile Destroyer, the Type 82, but only one of these ships was ever built – HMS *Bristol*. The system was then fitted to the smaller Type 42 destroyers of the Sheffield-class and was only fitted to HMS *Invincible* as the original intention was for this class of ship to be classified as “through deck cruisers” rather than aircraft carriers.

The basic sequence of an engagement was that the ship's search radars (Type 1022 and 992) would detect a target and the ADAWS system, under the control of the Air Warfare team in the Operations Room, would pass the range and bearing to one or both of the Type 909 fire control radars. The radar would carry

out a search with an India band radar and lock onto, or acquire, the target. Once within range of the missile, a Juliet band radar, also on the 909, would illuminate the target and when the system confirmed all was good, the Sea Dart Controller in the Operations Room would engage. The system could either fire a single missile at a target or a salvo of two missiles, one from each beam of the launcher, a short time apart.

A solid fuel boost motor accelerated the missile to Mach 2 within two seconds when it would be jettisoned, and a kerosene fuelled ram jet motor would take over. At the end of boost, the missile would search for the Juliet band radar signals being reflected from the target and it would then home in on those reflected signals. On

approaching the target, a radar proximity fuse would trigger the fragmenting (expanding rod) warhead, destroying the target.

The Type 909 fire control radars were notoriously unreliable and difficult to maintain but we soon discovered that they worked much better when they were left on 24 hours a day rather than normal peacetime operation which saw them constantly being switched on and off. We were also aware that the system was designed to shoot down high-altitude targets, not sea-skimming missiles, or low-flying aircraft as the Type 909s and the missiles themselves suffered from multi-path effects (radar signals being reflected off the surface of the sea) when engaging low-level targets.

Other missile systems in the British fleet, such as the ageing Seaslug or Seacat missiles, had virtually no chance of intercepting a cruise missile.

It should be emphasised that three of the ships (the Type 22 frigates HMS *Broadsword* and HMS *Brilliant*, as well as the Leander-class frigate Batch 2 HMS *Andromeda*) were fitted with modern Sea Wolf missiles, which had an anti-missile capability and which, a year after the war, would destroy an Exocet in flight during trials off the coast of Wales (in tests which Aérospatiale, for its part, considered unrealistic).

However, while at the time of the conflict the possibility of destroying a missile such as the Exocet by another missile was purely theoretical, the fact that there were only three Sea Wolf-armed ships (indeed, HMS *Andromeda* only arrived in theatre on 25 May) and the limited range of these missiles conspired against it. In any case, the Sea Wolf system was not mature enough and its failures during the conflict would prove this. Not to mention the guns, many of which were manually guided against aerial targets. The Royal Navy did not have CIWS (Close-in weapon system) like the US-made Vulcan Phalanx.





(Location names and sites are included as shown in the original assessment map)

The most effective remedy against the Exocet, then, was to try to seduce the missile with chaff, as long as the ship was able to stay within the cloud of metal strips when searched by the missile's radar, ideally to the right of the cloud (as the missile searches from left to right). It would then be necessary to consider the wind conditions and, in addition, to know precisely how long it would take for the protective curtain to disappear.

After the related studies and analyses, on 29 April, at 1604z, CTG 317.8 (Commander Task Group 317.8) distributed a message to all its units detailing the countermeasures against the Argentine Exocet missiles.

The launch distances between the MM-38 and the AM-39 vary (MM is launched at up to 25 knots, whereas AM is launched at average 450 knots giving it extra range – just like a javelin being launched by an athlete either standing still or after a run-up), but the flight path and search phase are similar. Consequently, all Argentine missiles would be considered identical for the purposes of the predetermined air strike reactions, known as “ZIPPO”. In that message, the criteria to be observed for issuing the ZIPPO alert were set out.

As Argentine Exocet missiles did not have the chaff discrimination modification, the Task Force's main defence relied on the use of a diversionary chaff, the chaff D. To ensure the timely launch of the chaff, ZIPPO rapid reaction procedures were used. These procedures required fixed responses to specific ZIPPO calls.

The different categories for chaff were: chaff – C: chaff deployed from 4.5in guns; chaff – D: chaff deployed from shipborne 3in rocket launchers; chaff – H: chaff skillets deployed from helicopters; chaff – F: chaff deployed from ship's funnel.

When a missile was detected at short range, the ZIPPO 1 alert was to be issued. The detection could respond to certain criteria: (a) visual sighting of a missile or missile launch by any unit within the ZIPPO area; (b) ESM detection of missile homing radar assessed to be within 50nm of the detection unit; (c) Fast moving radar contact within 50nm of ZZ (centre point of a group of ships). ESM being Electronic Support Measures; a system that detects, identifies and locates hostile radar signals.

On the other hand, the ZIPPO 4 was to be issued when there was a missile or other attack imminent. The criteria for calling the alert were: (a) ESM detection of enemy airborne reconnaissance radar (or surface-to-surface data link transmission); (b) ESM detection of enemy surface search and/or acquisition radars; (c) Visual or radar detection of enemy aircraft or surface vessels; and (d) ESM detection of multiple airborne acquisition radars.

For ZIPPO 1, the reactions would be: (1) EMCON (Emission Control; i.e. Control of electromagnetic emissions from units) unrestricted; (2) Fire chaff D; (3) Ships increase to max speed turn to put threat on starboard quarter. Meanwhile for ZIPPO 4, these would be applicable: (1) EMCON unrestricted; (2) Fire chaff C; (3) Jam aircraft or surface unit radar; (4) Lay chaff H; (5) Fire chaff Delta to be blooming by time hostile aircraft reach 50nm or ships reach 25nm; and (6) Ships increase speed turn to put threat on starboard quarter.

Chaff was to be deployed as follows: a. chaff C – fired 5 degrees right of threat bearing range 030 height 200 ft.; b. chaff D – 12 blooms to be fired. Remaining four were kept for resow if required.

In addition, the aim of increasing to maximum speed and presenting the starboard quarter to the incoming missile was to move the ship as fast as possible into the part of the missile search pattern where acquisition was least likely to occur.

Despite the above, which was the best advice given by boffins and manufacturers, the balanced judgement between keeping weapon arcs open or relying almost totally on chaff was a fine one and would depend on the situation at the time.

Rear Admiral John Forster “Sandy” Woodward signal ended stating: “Ultimately, the choice rests with individual Commanding Officers and depends in the need to: a. Keep weapon arcs open; b. Move to the missiles right; c. Avoid being in line with chaff; d. Present a fine aspect; e. React quickly; g. Meet the tactical demands of the moment”.

Captain David Hart Dyke, commander of the Type 42 destroyer HMS *Coventry*, recalls these passive measures to be taken in the event of an Exocet attack:

There were, though, some counter measures available to us. We could for example, turn the ship to a certain angle off the missile's approach course and then fire chaff from our rocket launchers which, with its millions of tiny metal needles, would create false radar echoes away from the ship. The ship had to be manoeuvred to stay within the pattern of the chaff, and this meant streaming at slow speed downwind. The missile would then be attracted to the false echoes rather than to the ship's echo reflected from the hull. This at least, was both the theory and the hope. It all depended, of course, on our having detected the missile in the first place.

In haste, a jammer for the Exocet radar was being sought. By April, it was still in the realm of magic.

## 6

# SECOND HALF OF APRIL: DEPLOYING SOUTH

The choice of the Hermes Quijada Naval Air Base (named after an Argentine Admiral who was assassinated in April 1973 by terrorists), located near the city of Río Grande in Tierra del Fuego Province, was almost natural. First, its proximity to the Falklands/Malvinas (some 400 nautical miles from Port Stanley/Puerto Argentino, the capital of the islands) made it very attractive. But it also had the advantage of being a Navy base, which had been prepared and improved since the crisis with Chile in 1978.

Underground shelters and bunkers had been built for personnel accommodation and ammunition storage, while the facilities and the only runway, which was large (2,000 x 40 m), had been improved. By 1980, a new H-shaped underground operations centre (known as “the pit”) had also been built, as well as staff accommodation buildings.

In addition, it was possible for aircraft to take off from two alternative airfields, which had been built to the south and north of the airport, considering the always strained relationship with the





Sunrise at Río Grande Naval Air Base. Two Sud Aviation SA316 Alouette III helicopters, a Lockheed SP-2H Neptune, two Douglas A-4Q Skyhawks and behind them a Short Skyvan can be seen on the apron. The nose on the right looks like that of a Lockheed Electra. (Alberto Philippi)

neighbour Chile, using National Route No. 3 as a base (i.e., the route had been widened in straight sections for a couple of kilometres).

Despite that, the base was not free of drawbacks. As Vice Admiral Lombardo, who together with Rear Admiral García Boll ordered the Second Squadron to be deployed there, pointed out:

To decide on the transfer, we had to evaluate the advantages and disadvantages. Among the advantages, the most important was the proximity to the area of operations. Among the disadvantages, the most worrying was the vulnerability of this base to overt or covert attack.

But there were other problems as well. The weather was inhospitable, and the infrastructure was inadequate to maintain the complex aircraft and missiles. However, none of this was unknown to the pilots and technicians of the Second Squadron. They had all been there at some point in their careers.

As the days went by, the naval air base began to receive other Navy units, such as the Lockheed SP-2H Neptune of the Naval Exploration Squadron (*Escuadrilla Aeronaval de Exploración*), the Beechcraft BE-200 and BE-80F of the Naval Reconnaissance Squadron (*Escuadrilla Aeronaval de Reconocimiento*), the various aircraft of the General Purpose Squadron (*Escuadrilla Aeronaval de Propósitos Generales*) and the Fokker F-28 and Lockheed L-188 Electra of the Mobile Logistic Support Squadrons (*Primera y Segunda Escuadrilla Aeronaval de Sostén Logístico Móvil*) and the Puma helicopters and Short Skyvan aircraft of the Argentine Coastguard (*Prefectura Naval Argentina*).

Once the Air Wing disembarked from the aircraft carrier ARA 25 de Mayo, the Douglas A-4Q Skyhawks of the Third Squadron (*Tercera Escuadrilla Aeronaval de Caza y Ataque*) joined the Río Grande base, from 12 May. In addition, there were also the IAI Dagger aircraft of the Air Force, the AN/TPS-43 radar, also from the Air Force, and the associated anti-aircraft defences. To support all these personnel, aircraft, weapons, radar and communications, personnel living at the base increased from 850 to 1,200. In turn, the 1st Marine Infantry Brigade provided protection and defence

of the base and surrounding area. As of 12 April, *Capitán de Navío* Héctor A. Martini oversaw control, communications, coordination and support to the zone, operating from the base bunker. Finally, on 18 April, the Second Squadron was ordered to deploy to the base to complete its training in the area of operations.

That day, one section (3-A-202 and 3-A-204) took off from Espora, while the second section (3-A-203 and 3-A-205) would take off on the 19th. The remaining pilots and technicians would travel in Fokker F-28 flights until the deployment was complete.

The French technicians remained in Bahía Blanca. It was not considered prudent for them to travel south. Christian Larrieu recalled his proposal (along with the other two French technicians) to deploy to the new base of operations as well:

We offered to go over there to assist them if Colombo wished. He refused and replied: "If there are problems, we will send you the components to try to fix what can be fixed. But you will stay at the base in Espora". Once the planes left for the south, we had no more news. We all had our radios, bought locally, to listen to news of the conflict on Radio France International – not easy, by the way.

The only five Exocet AM-39 missiles that Argentina had also travelled to Río Grande, but rather than hanging below the aircraft, they travelled protected in their containers. The missile degrades quickly outside the container, so great care was taken. As Captain Colombo explains:

We didn't touch the missiles very much. The missile inside its nitrogen-pressurised container had 365 life points (each point equalled one day). If it stayed there, it lasted 365 days before being sent back to the test bed to check the missile's own inertial system and its radar. The warhead could never be tested. If you opened the container and hung the missile on the aircraft, for each day, that was 15 points or 15 days. If you took off, but didn't fire and came back with it, that was equivalent to a third of 365 points and, with two sorties without firing, the missile had to go to the

test bed in Puerto Belgrano. We would send the missile by plane; it would take off at 3 a.m. (from Río Grande) and by the evening I had it back. Only once did it take more than a day.

The squadron members began to settle in at the base. Captain Colombo decided that he would spend his time “in the pit” (Combat Operations Centre), while the pilots would spend the day in a room in the hangar, along with the aircraft. He wanted his pilots to rest and think only about the missions, while he took care of the coordination and the arguments with the superiors. He was aware that the capabilities of the airplanes and missiles were not widely known to his commanding officers at the distant base of Espora, and that there would be orders to come that he would have to discuss. He was not wrong.

At night, the pilots rested inside the base, as Lieutenant Julio Barraza recalls:

All senior and junior personnel lived on the base, housed in the living quarters intended to accommodate crews and personnel of squadrons that would eventually operate from there. It should be added that these living quarters were very comfortable and warm. I was struck by the care and cleanliness of all personnel, who treated them as if they were their own homes.

Corporal Banegas also recalls his experience in the accommodation. As a non-commissioned officer, and as is usually the case, the housing conditions were not comparable to those of the officers:

We slept in a single huge room, on bunk beds in fours. We had only one bathroom. It was precarious, because it was a place designed for 30 or 40 people and there were many more of us. It wasn't comfortable.

That changed later on, but at least during those days in April they had heating and a bed to rest on.

On the same day, the 20th, Rear Admiral García Boll arrived at the base and addressed the squadron. Clearly, he told them:

Do what you have to do. Don't risk more than you have to. The normal thing in this profession is to take risks. Don't commit suicide. I don't want heroes.

Time was pressing; the war was getting closer and closer. A war to which they would go with untested armament, little experience in the aircraft and no answers to the many questions that were arising.

The planes began to spread out across the wide base, to avoid being destroyed simultaneously by a commando raid or an air strike. It was a long and complicated task for the ground crews: night dispersal (to random locations) began at 1930 and tasks were not completed until 0300 the next day. There, each aircraft was guarded by marines. To make matters worse, at 0600 the operation to redeploy the aircraft to their assigned hangar would begin and end shortly thereafter.

On the 22nd, the simulated attacks resumed, this time on the ARA *Alfárez Sobral* (ex-USS *Salish*). The operational environment had changed: in different sea and wind conditions, the squadron used this time to fine-tune procedures within the theatre of operations.

The advantage was that the two Neptunes of the Naval Air Exploration Squadron were operating from Hermes Quijada, so

Neptune 2-P-112 assisted in guiding the section of Super Étendard that attacked the small Navy ship.

Two days later, on 24 April, some of the Super Étendard pilots crossed to the Falklands/Malvinas in a naval Fokker F-28 to personally establish airfield conditions on the islands, as *Teniente de Navío* Julio Barraza recalls:

I have a vivid memory of that flight to Malvinas because, for me, it was a shock. I remember an American TV series from the 1970s called MASH, which depicted chaotic and crazy situations in the Korean War. It was just like that. When we got off our Fokker, I could see that on what was a makeshift platform there were two *Aerolíneas Argentinas* Boeing 737s that had been stripped of all their seats and, as I remember well, one of them was full of pumpkins. There were soldiers on top who were throwing them on a flatbed trailer. That was a scene from MASH. A real mess because of the lack of coordination. You didn't know who was in charge. There were groups of soldiers coming and going. I didn't get a good impression on the ground of how I saw things. Utter disorganisation. As for the reason we went to Puerto Argentino, it was to see if the runway would allow us to operate from there. Obviously, it was not long enough, and there were not enough facilities to support our operations. For that reason, it was decided that we would continue operating from Río Grande.

On the same day, *Comodoro* Carlos Corino, the highest authority of the Argentine Air Force at the Río Grande base, suggested that the Super Étendard missions be supported by Dagger aircraft, which were also deployed there. His proposal was that the Daggers would be armed with air-to-air missiles (RAFAEL Shafrir-2). Four Daggers would escort the Super Étendard sections.

This was not accepted by Captain Colombo, who insisted (once more) that it would complicate the profile set up for the mission and breach the discretion they sought. *Comodoro* Corino, however, continued to insist and a flight was arranged for the following day to find out, in practice, whether it would be possible. As Colombo points out:

I said to Corino, well, that's fine. There was an offshore oil extraction platform at the mouth of the Strait of Magellan, which we used for simulated attacks. I told him: “Tomorrow I'm going out (I'm flying it) and we're going to see how you want to do the joint missions. I'm going to be flying over the platform, send me the planes you want”. I took off, I went, and they never came.

In the end, the Daggers could not make the rendezvous because of mechanical problems. There was never any other possibility of coordinating this type of flight, which was not in the interest of the Second Squadron. However, this did not prevent the Super Étendard pilots from passing on their experience in attacking naval targets to the Air Force pilots, just as Corino gained the appreciation of all the naval personnel at the base. On 29 April, another attack was mounted on the ARA *Alfárez Sobral*. It was the last. From then on, preparations and training would become secondary events.

The following day, 30 April, a flotilla of Victor K.2 tankers took off at 2350z from Wideawake on Ascension Island to refuel the Royal Air Force's Avro Vulcan B.2 XM607 bomber on successive occasions, with the mission of dropping their bombs on the runway of the capital of the islands in the early hours of the following day.

With the British fleet within range of the Super Étendard, the theory was to be put into practice for the first time.



## 30 APRIL – 1 MAY: THE FIRST CLASHES

With the bulk of his ships entering the Total Exclusion Zone (TEZ) late on the night of 30 April, and with political authorisation to take military action against Argentine forces in the Falklands/Malvinas, Admiral Woodward's next step was to proceed with a show of force to convince doubters that he meant business. He also hoped to force the Argentines to engage in combat and demonstrate their capabilities and weaknesses.

In the meantime, at 2017 on 30 April, the Argentine Air Force Air Operations Command issued message JB-4854 to the South Atlantic Operations Command (COATLANSUR). In that message, it requested that the Super Étendard aircraft of the Naval Aviation operate under the operational control of the Southern Air Force (SAF), as of 1 May "due to the proximity of the start of operations and the need for maximum coordination and efficiency". The request was finally rejected by Vice Admiral Lombardo.

On the Argentine side, an attack on the islands and a landing of troops with helicopters was expected, so fighters and bombers were ready at the mainland air bases, waiting for the British to strike first. Since 21 April, the Naval Intelligence Service had been aware of the movement of the British ships after sailing from Ascension Island through the FAA's long-range surveillance flights, with their Boeing 707 jets and some C-130 Hercules on reconnaissance duties.

Back on the night of 30 April, at Río Grande base, Captain Carlos Moreno, pilot of the Air Force Dagger Squadron "*Las Avutardas Salvajes*" ("The Wild Bustards"), received a message. It was to prepare to leave at 0430 for a mission to cover a Lockheed SP-2H Neptune that was to take off at 0300 to conduct a reconnaissance to the east of the Falklands/Malvinas Islands, to locate the British fleet. However, the Neptune's mission was cancelled, leaving him on standby for the next sortie.

But, at 0438 hours, the lone Vulcan (XM607) dropped its 21 1,000-pound bombs on the runway at Port Stanley/Puerto Argentino, beginning a hectic day.

At 0500 hours SAF (Southern Air Force) Fragmentary Order 1091 arrived at Río Grande for an air cover mission over the

Falklands/Malvinas Islands. The Dagger section was composed of Captain Moreno (in C-437) and Lieutenant Héctor Volponi (C-430) who took off at 0745 still in darkness and flew eastbound towards the islands. Both were armed with two Shafrir-2 missiles and their 30mm DEFA guns and carrying three external 1,300 litre fuel tanks.

At 0825 hours they made contact with the radar in the Falklands/Malvinas while flying at 28,000 feet and at a distance of 50 miles from the capital of the islands. The radar informed them that the British were bombing the airport of the islands' capital and that they had two Sea Harriers about 120 nautical miles away in pursuit. Moreno ordered Volponi to give full power and reach supersonic speed, descending to 20,000 feet. Moments later, the radar in the islands ordered them to take a new course and indicated that they had enemy aircraft ahead. When they were about 20 miles apart, with the Sea Harriers 2,000 feet below, Moreno ordered them to eject the external wing tanks and keep the centre tank. About 12 miles away, Moreno ordered Volponi to give full power and reach supersonic speed.

Both formations began to search for each other without success, but the danger became apparent when Lieutenant Volponi saw a missile pass alongside his Dagger. He reported it to Captain Moreno who made an abrupt evasive manoeuvre to confuse it, after which they returned to the mainland with the minimum fuel to do so safely.

The British CAP (Combat Air Patrol) they encountered were from the Royal Navy's 801 Naval Air Squadron based on the carrier HMS *Invincible*, and were Lieutenant Commander Robin Kent in Sea Harrier ZA175 and Lieutenant Brian Haigh in XZ498, on their second mission of the day. Both pilots were convinced that they observed the Dagger firing two missiles, and the report received by the fleet prompted the first of several Super Étendard attack (with Exocet missiles) alerts throughout the day. To add to the confusion of that first encounter, none of the Sea Harriers fired any missiles, despite Volponi's account.

The Daggers continued to fly interception missions, and later it was the turn of the LIMON flight led by Major Carlos Napoleon



Argentine Air Force Dagger aircraft flight line. In the foreground, the C-411, of the II Squadron "*La Marinete*". This aircraft flew two missions during the war and was converted to Finger IIIA in 1985/1986. It is currently preserved in the Malvinas Museum in Oliva, Cordoba Province. (via Claudio Meunier)



The Dagger C-418 participated in 11 combat missions, being deployed with the Squadron I "Las Avutardas Salvajes". It survived the conflict but was lost on 12 June 1987 on a training flight. Its pilot was able to eject successfully. (via Claudio Meunier)

Martinez in C-435, with First Lieutenant Héctor Luna in C-429. A few minutes later, Captain Horacio Mir Gonzalez in Dagger C-430 and Lieutenant Juan Bernhardt in the C-437, of the CICLON flight, took off. On several occasions, when the Daggers were close to the Sea Harriers, they dropped their supplementary fuel tanks, which led to the belief that they were missiles.

The British ships received these alerts of sightings of suspected missiles, plus the detection of radars identified as the AGAVEs used by the Super Étendard.

Lieutenant Commander Rupert Nichol on board HMS *Hermes* (he was the Instructor Officer, Press Liaison Officer and Official War Diarist), remembers the tension aroused in those moments and the reaction caused:

Suddenly, 'Action Stations'. Two Argentinian aircraft have fired Exocet missiles at the fleet. Frenzy, as the carrier heels over and we turn away to present the narrowest possible target to these, the most feared of all the weapons we face from the enemy. No time to be afraid, though, as we pull on our anti-flash hoods again, and hear the noisy gunfire of our rocket-firing chaff dispensers: tinfoil strips are scattered in 'blooms' around us, to seduce the missiles of their target ('seducing' is the official term for this decoying action); and the CRUMP and WHOOSH of these rockets must sound like hits on the ship for those unfortunates down below, who are out of sight of, and uncertain about, what may be happening above.

Lieutenant Commander Nichol continues:

Almost at once we get another report from our screening ships that the missiles were fired from more than 100 miles away – that is, from more than four times their effective range. Relief and laughter flood through all of us as we speculate why the Argentine pilots should have done this: 'pressing the tit' too soon

and heading for home as fast as possible? – or 'dumping' their weapons as soon as our Harriers appeared to give chase.

Faced with these reports and other Agave radar detection alerts, the Task Force had difficulty discerning the alerts and properly executing ZIPPO procedures.

Captain J.J. Black, commander of HMS *Invincible*, describes the situation:

I flew a pair of Sea Harriers up threat from our force and launched additional pairs in response to perceived threats. These came, all too frequently, from the electronic-warfare experts, who initially misidentified the Mirage fighter radar as that of the Super Étendard, which carried the dreaded Exocet. As we were just starting the four day's twitch period, any number of events occurred unnecessarily. For example, a pilot was flying over the islands and saw an air-to-air missile fired at him. Between this event and the report reaching the command on board, it had been mistranslated as an Exocet. My entire ship's crew was lying on the deck, anticipating the worst!

On that first day of the air battle, with multiple alerts, the Task Force spent an unnecessary amount of chaff D, so the incidences of each event had to be analysed in order to adjust procedures.

The reconstruction of the different events showed the tension experienced by the threat of the Exocet missile. As an example of this, the following report is very descriptive (but incorrect; the Argentines, again, did not launch any missiles):

At 1128z, *Invincible* reported an air contact 160nm to the west of the Main Body tracking NE. CAP from station 9 was vectored at 15,000 feet for intercept. The Argentine section, probably under GCI control from the islands, changed course towards the approaching pair of SHAR (Sea Harrier). At 1135z the first air-to-air engagement of the war occurred. The SHAR gained





Lockheed SP-2H Neptune 2-P-111, shortly after the war, in Comandante Espora Naval Air Base. (Jorge Figari via Alejandro Amendolara)

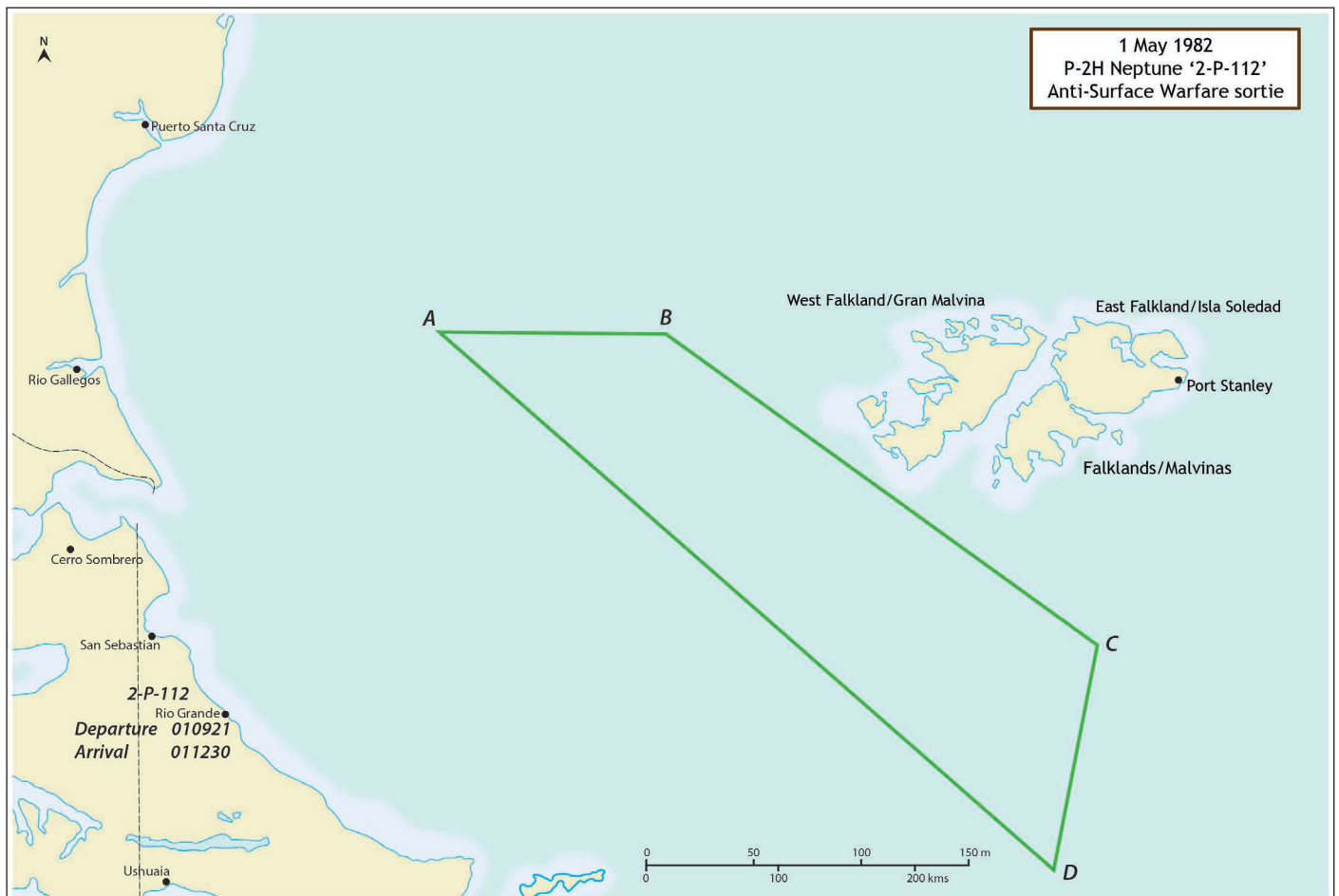
initial contact on the Mirages at 8nm with Blue Fox and a hook manoeuvre was initiated. The Mirage, apparently operating with a 3,000 feet altitude split, were sighted by the SHAR Pilot at 3–4nm. Both Mirages launched AAMs which missed their targets. The first Mirage fired a head-on shot that passed directly over his target, when dived to low level, and departed to the west by outrunning the pursuing SHAR. The second Mirage, 3,000 feet above the first, also fired a head-on shot that passed down the port side of his target, the SHAR executed a tight manoeuvre up and to the left, to gain lock-on with their AIM-9L so none was fired. The Mirages departed to the west and CTG concluded that they had fuel problems.

The firing of the AAMs, as reported by the SHAR pilot, caused the AWC to call ZIPPO 1, resulting in the launch of CHAFF D

by several ships. Other ships held their CHAFF D and responded with rounds of CHAFF C.

The missiles fired against the SHAR may have been MATRA 530, as suggested by the observation of the missiles exhaust by one of the SHAR pilots. As the MATRA 530 semi-active AAM has a better chance of acquiring the target in a head-on engagement than the MATRA 530 infrared variant, the semi-active MATRA 530 appears the more likely candidate for use in this event.

The AAWC incorrectly called ZIPPO 1. What was reported that caused the ZIPPO 1 to be called cannot be determined for certain. The tactical situation called for a ZIPPO 4. From the response by those ships that fired CHAFF C, not the correct reaction to ZIPPO 1 but more appropriate in this event, it would appear that these units momentarily had a better grasp of an



air picture than the AAWC. The ZIPPO 1 resulted in an unnecessary expenditure of scarce chaff delta stocks.

Lieutenant Commander Ian Inskip, navigation officer of the destroyer HMS *Glamorgan*, recalls these sightings and the reactions generated:

Shortly afterwards, a combat air patrol intercepted two Mirage. One was 'seen carrying Exocet'. If true, the Mirage had to be Super Étendard. If it was a Mirage, then the 'Exocet' was probably an external fuel pod. Action stations was piped and chaff Charlie (chaff delivered by a 4.5 in Shell for confusion) fired. One Mirage was seen to be on fire and a Harrier executed an optimistic victory overhead. Other reports indicated that the 'Mirage on fire' was, in fact, a Mirage launching a missile.

Whilst this was going on, two contacts, believed to be Super Étendards, were detected closing at 170 miles but these contacts were again identified as returning combat air patrols. The same happened a few minutes later but just as chaff Charlie was fired, Seaslug became defective and out ahead of the carriers we felt very exposed.

Finally, Neptune 2-P-112 took off from Río Grande at 0921 hours to conduct anti-surface exploration to the east and south of the islands. There was information about the presence of submarines in the area, so the aircraft carried two Mk.44 torpedoes. The other available Neptune, 2-P-111, was flying a coastal run from Espora (where it had taken off at 0934) towards Río Grande.

A few hours later, from 1310, Neptune 2-P-112 began to report the detection of several targets, medium and large, being detected south of the Falklands/Malvinas, some far away from the islands. The Neptune did not maintain contact with these targets (which we now know were mostly Soviet bloc fishing vessels) but continued its ordered search pattern.

The situation on the islands was quite chaotic. The attack by the lone Vulcan had been followed by attacks by Sea Harrier aircraft, and reports (most of them erroneous) of landing craft, amphibious ships close to shore and helicopters landing troops were multiplying. In fact, there were only British helicopters approaching the coast.

From that moment on, the Commander of the Naval Aviation, Rear Admiral García Boll, issued the first attack order for the Super Étendard, with the aim of attacking enemy ships located near

**Table 3: 1 May Mission**

Pilot/Aircraft Commander	Aircraft	Registration	Weapon Load	Comments
<i>Capitán de Corbeta</i> Colombo	Super Étendard	3-A-204	1x AM-39 Exocet	Section leader
<i>Teniente de Fragata</i> Machetanz	Super Étendard	3-A-203	1x AM-39 Exocet	
<i>Vicecomodoro</i> Litrenta	KC-130H	TC-69		Tanker



*Teniente de Fragata* Carlos "Pibe" Machetanz prior to the flight on 1 May, where no target was found. (*Segunda Escuadrilla Aeronaval de Caza y Ataque* historical book)

the Falklands/Malvinas. It was not clear what they would end up attacking.

*Capitán de Corbeta* Colombo had an order to accomplish issued by the Naval Aviation Command, which insisted on carrying out the mission because until then "only the Air Force had attacked, not the Navy".

But the information for the mission was not complete: the planning during April dictated that Colombo's planes would attack targets whose position was known and, above all, contact would be maintained by the MPA. In spite of that, he decided to comply with the order issued by his superiors.

For his part, García Boll was trying to coordinate the Super Étendard attack with the Southern Air Force aircraft, but this did not prove possible. The Air Force would carry out its attacks independently. All four available aircraft and pilots (two sections) were readied at Río Grande.

However, as agreed, the first attack of the day (and of the conflict for the squadron) would be led by Captain "Piti" Colombo, together with Lieutenant Carlos Rodolfo "Pibe" Machetanz. In addition, at 1610, a signal was received from the islands:

BEARING 180° AT 20 NAUTICAL MILES, THREE MISSILE FRIGATES; BEARING 120° AT 60 NAUTICAL MILES, AN AIRCRAFT CARRIER



The last three ships in question were in fact the County-class destroyer HMS *Glamorgan* and the Type 21 frigates HMS *Alacrity* and HMS *Arrow*, which approached to carry out naval bombardment of the airport area (which were eventually attacked by three Daggers of the TORNO flight which took off at 1545 from the San Julián airbase).

Now, García Boll had a clearer situation, but also a dilemma as to which targets to attack. Should he order to go for the carrier, whose position left some room for doubt and whose escorts he was not aware of, or should he attack the three frigates that were closer to the coast and whose position was obvious?

At 1612, he finally decided to order an attack on the three ships close to the capital of the islands. He then informed Captain Colombo that the first section of aircraft (3-A-204 and 3-A-203) should be attacking the assigned targets at 1715, while the second section (with 3-A-202 and 3-A-205) should make their attack at 1900.

The take-off of the Super Étendard of the first section was delayed for 35 minutes due to failures in the communication system of Captain Colombo's 3-A-204. Once the problems were solved, the section composed of Colombo and Machetanz (in 3-A-203), took off at 1638 hours, setting course for the Air Force KC-130 Hercules refuelling aircraft, at an agreed point 090° off Río Grande and 240 miles from the target.

The airborne rendezvous was accomplished at 1710 hours. The refuelling went smoothly, but Colombo's Super Étendard began to leak fuel, which jeopardised the mission. Also, enemy radar emissions were detected by the two fighter-bombers.

Captain Colombo recalls:

The guys in the Hercules started saying to me 'Chief, you're leaking fuel.' All the fuel was leaking out of the MAL (*Mise Air*

*Livre*) valve. When you refuel, you depressurise the tank because otherwise the fuel doesn't go in, and then that valve that is open must close. This one didn't close, it closed halfway. When I was deciding what to do, Machetanz also informed me of the leak and, in addition, he told me: "BF" (for the RWR). I nodded to him. We didn't talk any more. I disengage, he disengages, we turn, and that's when I had the contact on the radar screen.

About 180 miles from the target, Colombo checked the remaining fuel with his wingman and verified that the leak was significant and would not allow him to return if he continued. Leaking fuel and with a radar contact, Colombo had to make a decision:

So, I see the radar and I said: 'mmm... too small, it can't be'. Luckily, I decided not to press on. It was the [Argentine merchant ship] *Formosa*, which was in that area coming out of the Port Stanley/Puerto Argentino area, but I would have sunk it. If I had continued, the *Formosa*, in addition to the bombs it received from the Air Force ... I would have finished the job, and I would have spent two missiles in vain.

For this reason, Colombo signalled to his wingman to end the mission and return to Río Grande. At 1737, García Boll had also ordered the suspension of the attack by the second section of Super Étendard, due to the lack of response from the Falklands/Malvinas Combat Information Centre (CIC), which was to update the position of the ships.

In the event, the merchant ship ELMA (*Empresa Línea Marítima Argentinas*) *Formosa*, which had left military equipment in the Falklands/Malvinas, had reported at 1750 that, while returning to the mainland at 12 knots, it was attacked by aircraft and received



cannon fire and two bombs which were lodged inside it without exploding. A flight of Douglas A-4B Skyhawk aircraft, bearing the call sign TRUENO, which had taken off from Río Gallegos at 1600 hours, mistakenly attacked it, believing it to be a British ship.

When the fuel leak in Colombo's aircraft became known in Río Grande, Captain Héctor Martini ordered a Puma helicopter of the *Prefectura Naval Argentina* to take off. The helicopter went to meet the pair of Super Étendard on their approach route to the mainland and to provide a rescue station in the event Colombo had to eject from his aircraft.

The section landed at 1801 hours at Río Grande, without major problems. After leaving the cockpits, Colombo reproached his wingman for having spoken during the flight, which contradicted what they had so often practised:

When Machetanz broke radio silence to report I was losing fuel, I wanted to kill him! I didn't tell him at the time, but when we got out. He would have signalled me, I reproached him.

Sir, you were out of sight, you weren't going to see me. You didn't give a damn,' was his reply.

Obviously, I was busy between the mission and the signals on the BF.

The Second Squadron commander continued to berate himself for committing two pilots, and their aircraft with their respective missiles, to a mission ordered in haste and against all planning and procedures. As an assessment of the 1 May mission, Colombo concluded:

A disaster. My mission can be described in one word: a mess, a disaster. I wish one day I could erase it from my mind. Ok, it didn't cost anything, only fuel was spent, but it could have culminated in a total disaster. At no point was I ever told where the targets might be, that there was no detection of Neptune. At no point did it occur to me to say "this is not what we had planned, they can go to hell. Sir, I'm not going out at all". I should have refused to [carry out] this mission. Why to press on this mission? The Navy was going crazy, especially Lombardo in *Comodoro* Rivadavia. Why? Because the Air Force was doing things, with very meagre results, but it was going out, and the Navy was doing nothing. So, that day something had to be done. I received the order, but later I said... never again. The problem is that I didn't know yet how to say no. That's when I learned to say no. But I didn't come out of it unscathed. They wanted to shoot me.

Colombo insisted on taking part himself in the next mission, but priority was given, as previously arranged, to the pairs of pilots scheduled for the next flights. Colombo and Machetanz had missed the first major opportunity to launch Exocets, but many valuable lessons had been learned in the squadron that would be applied in the incoming planning and conduct of future operations. It was also the first of Captain Colombo's battles with his superiors.

The list of pairs continued with *Capitán de Corbeta* Augusto Bedacarratz and *Capitán de Corbeta* Armando Mayora (who were to have flown that same day on the aborted mission). Soon, they would take it upon themselves to put these lessons into practice.

## 8

# 2-4 MAY: THE SINKING OF HMS *SHEFFIELD*

After the confusing events of 1 May, which ended with little gain for the Argentine forces, came the catastrophic sinking of the cruiser ARA *General Belgrano*, torpedoed by the nuclear-powered attack submarine HMS *Conqueror*. At 1702 on 2 May, the Argentine cruiser disappeared from the surface. Its sinking would leave 323 dead.

It took a few hours for the news to reach Río Grande and it was not until 2230 that the 11 crew members of the Lockheed SP-2H Neptune 2-P-112 of the Naval Air Exploration Squadron took off from the base to begin a search mission. 2-P-112 was commanded by *Capitán de Corbeta* Ernesto Proni Leston who tried his best to find the survivors of the sunken ship. He knew that it was a cold night in a rough sea, so the chances of survival were decreasing hour by hour. Among other things, he ordered the AN/APS-20 radar to remain on, even though it was difficult for the old but powerful radar to detect a small raft at close range in a sea full of waves.

By 0500 on 3 May, 2-P-112 was reaching the limit of its endurance, so it started back towards Río Grande. On the way, it crossed paths with the other available Neptune, 2-P-111 under *Capitán de Corbeta* Julio Pérez Roca (who was also commander of the squadron), which finally, after midday, detected the first rafts with survivors. The noble Neptune aircraft had accomplished the given task but had used up several of its few flying hours remaining.

These aircraft had been bought second-hand in 1977 (they had flown in the US Navy), as a stopgap measure until more modern

aircraft, such as the Lockheed P-3 Orion or the Breguet 1150 Atlantic, could be brought in. The purchase was reasonable at the time, both because of its low price and because there was experience with the Neptune: the Naval Aviation had flown previous models of this aircraft for years. Four were acquired (all the SP-2H version and belonging to VP-67 Squadron), with a small batch of spares, and the plan was to use up their remaining hours until their replacements arrived. Each hour flown brought them closer to retirement.

But they were not the only aircraft in the skies over the South Atlantic. At 0900 on 3 May, the Argentine Air Force's Lockheed C-130 Hercules TC-68, call sign PATO, was attempting to land at the airport in the capital of the islands on a cargo flight. To avoid detection, it was flying very low. About to turn to begin landing manoeuvres, the pilot and co-pilot noticed, a few miles away, of what they assumed was a logistics ship "accompanied by two frigates, the latter further away". This caused the crew to abort the flight and set course for Río Grande (where it would be intercepted by a pair of naval aircraft, much to the fright of its crew) and then turn north and land in Río Gallegos.

Fifteen minutes before the PATO sighting, information had been received from "external sources" (we will see later who they might be), about enemy ships in a nearby area. The Southern Air Force (SAF) prepared to attack these targets, ordering several flights of fighters and bombers, coordinated also with tankers, relay aircraft



and deception flights. It was assessed that one of the targets detected might be the aircraft carrier HMS *Hermes*.

The list of flights that were scheduled was impressive:

Eight Douglas A-4B fighter-bombers (call sign FIERA and TRUENO) from Río Gallegos, each armed with three parachute-retarded bombs

Eight Douglas A-4C fighter-bombers (OSO and DOGO) from San Julián, each armed with three parachute-retarded bombs

Four IAI Dagger fighter-bombers (DARDO and PANCHO), from Río Grande, each armed with two Rafael Shafrir-2 air-to-air missiles

Four English Electric Canberra Mk.62 bombers (LINCE and ORO), from Trelew, each armed with four 1,000-pound bombs

Two KC-130 tankers (PATO and BICHO), from Río Gallegos and *Comodoro* Rivadavia

Four Gates Learjet Model 35 liaison aircraft, from *Comodoro* Rivadavia and other bases, on diversionary missions

One Gates Learjet Model 35 aircraft as in-flight relay

Of these, only one Douglas A-4C and the ORO flight of Canberra bombers were unable to take off due to technical problems.

The order to attack also reached the Second Naval Fighter and Attack Squadron at Río Grande. Little information was provided by the Air Force. A medium-sized target (unidentified) about 50 miles from the islands. Captain Colombo did not accept to launch a mission with so little initial information. He did not want to repeat the mistake of having agreed to take off on 1 May and his first reaction was to say that his squadron would not fly such a mission. But the Naval Aviation Command demanded full compliance with the order: in the context of the sinking of the *Belgrano*, the Navy had to attack.

Rear Admiral García Boll had also hesitated to commit the Super Étendards without a certain position of the target, but he had opted to go ahead with the mission, considering that the Air Force would do the same. Captain Bedacarratz and Lieutenant Mayora were next on the list, so Colombo informed them of the mission and that they would have to take off. Both made their pre-flight, having been assigned a KC-130 Hercules tanker and, with their missiles loaded, slowly taxied to the runway, awaiting the take-off order. Air Force aircraft were already in flight towards the target.

At 1513, the Naval Aviation commander ordered both aircraft to take off, requesting that the tanker aircraft update them on the latest position of the target once they made contact for refuelling. By then, much time had passed since the sighting and the target to be attacked might reasonably have moved.

But the aircraft, with so little information on the target, did not take off. The squadron was not prepared to move forward in these circumstances. The telephone calls on the encrypted line between Espora and Río Grande were intense. More data was needed and, somehow, Rear Admiral García Boll's order was not carried out. The planes would remain on the runway, waiting for updated info.

At 1600 the attack was cancelled, after a section of Aermacchi MB-339 aircraft from the First Naval Attack Squadron which had taken off from the Stanley/Puerto Argentino airstrip (and one of

which crashed on its return, killing the pilot, Lieutenant Carlos Benítez), could not find a target in the vicinity of the reported coordinates. Also, because the presence of an Argentine ship in the area to be attacked could generate a blue-on-blue incident.

As mentioned before, the Air Force aircraft were already en route and some were already refuelling. They would turn around and land safely at their bases.

With some tension, Bedacarratz and Mayora climbed out of their planes. There would be another chance. Captain Colombo had fought another battle in his personal war against his superiors, who did not fully understand how his planes and missiles worked. This time he had won. But something was going on in that part of the South Atlantic.

In the afternoon/evening, another Neptune sortie (in this case, *Capitán de Corbeta* Carlos Marioni's 2-P-111) approached the islands and detected electronic emissions, which he could not identify. The flight did not go unnoticed by British forces, who launched a Combat Air Patrol at 1752 to intercept it, without success.

A few hours later, on a very cold morning at 0400 on 4 May, the crew under Captain Proni Leston boarded 2-P-112 and prepared to take off again from Río Grande. Their mission was different this time. It was to investigate the waters around the Falklands/Malvinas and report, using its radar, on the presence of enemy ships. The aircraft's call sign this time would be MERCURIO ("Mercury").

As he always did, Captain Proni Leston ordered the crew to form up in front of the Neptune, gave them their final instructions and they began to climb in. The commander was the last. Once they were all inside the aircraft, Proni Leston approached the nose wheel, patted it, and spoke to his plane: "Old man, bring me back today".

The aircraft's radar operator was *Suboficial Segundo* José María Pernuzzi, and he remembers:

We got up very early that day, as we operators had to be in the plane an hour before take-off to calibrate the APS-20 radar's ASA-16 tactical analogue computer. In the pre-flight we had been told that it would be an anti-surface flight around the Malvinas Islands to secure the landing of three Hercules of the Argentine Air Force. Take-off took place at 0507 in total darkness. As we were climbing and sitting at our stations, in the middle of a great silence, we started our work. I requested permission to switch on the radar immediately. Captain Proni authorised it and without wasting any time I made the first tests. I saw the first contacts: they were Chilean ships that were always in the Strait of Magellan. This detection indicated that the radar was working fine.

The search mission would be carried out according to the established doctrine, prepared to minimise the possibility of counter-detection. The Neptune would fly low and climb abruptly for the radar operator to order three antenna turns, then return the aircraft to safety, very low over the waves.

This was the theory. In practice, the equipment was old and the radar would fail regularly (due to crystal failures – semiconductor diodes in the waveguide), so *Suboficial* Pernuzzi had to take care of both operating the equipment and lying down inside the radar tunnel to perform the crystal changes.

The aircraft commander, Captain Proni Leston recalls what was happening:

Our radar had glass valves and the crystals would burn out. Our operator would go down the tunnel with his overall's pockets full of crystals to the radar and change the crystals and then operate

the radar again, that was how we were operating at that time.

At about 0700 new information was received on the aircraft. The capital of the islands was under attack, so it was obvious that the Hercules flights would be cancelled. However, the Neptune continued its course, awaiting further orders from its base.

Shortly afterwards, at 0708, the first enemy contact was detected, classified as a medium contact. So was *Suboficial Pernuzzi*:



The Lockheed SP-2H Neptune 2-P-112 in service with the *Escuadrilla Aeronaval de Exploración*, restored and on display at the MUAN – Naval Aviation Museum. (Argentine Navy)

I confirmed that it was a skunk (surface contact detected by radar). From that moment on, the reporting operation to our controller began and we were ordered to keep scanning. When I turned off the radar and we began to descend, the electronic countermeasures operator, Warrant Officer Aníbal Sosa, informed me that he had detected an electromagnetic signal with the characteristics of a Type 965 radar. When the navigator and the Operations Control Officer placed the bearing of where the signal came from on the chart, it matched the target I had reported.

The information had to reach the Naval Aviation Command as soon as possible, so the radio operator, *Cabo Principal* Daniel Yerba, transmitted an encoded message:

FLASH. GFH 040709. FM: MERCURIO. TO: DIANA. TARGET NUMBER TWO: ONE MEDIUM, POSITION 53°11'S, 57°59'W, TIME 040709. ADDITIONAL HUMP, TRANSMIT FREQUENCY 170/210 MHZ, PRF 185, PULSE WIDTH 9, ANTENNA ROTATION 7. END.

There was at least one Type 42 destroyer there, about 100 miles away. At 0725, Proni Leston was ordered to cautiously maintain contact with that skunk. From Espora, Rear Admiral García Boll took charge of the situation and communicated with Río Grande:

I ordered two Super Étendard to be ready at Río Grande to attack with missiles, and the Neptune to keep in contact (in these cases the MPA follows an erratic trajectory at very low altitude, using its ESM equipment, and periodically ascends to briefly turn on its radar and confirm the position of the target).

**Table 4: 4 May mission**

Pilot/Aircraft Commander	Aircraft	Registration	Weapon Load	Comments
<i>Capitán de Corbeta</i> Bedacarratz	Super Étendard	3-A-202	1x AM-39 Exocet	Section leader
<i>Teniente de Fragata</i> Mayora	Super Étendard	3-A-203	1x AM-39 Exocet	
<i>Capitán de Corbeta</i> Proni Leston	SP-2H	2-P-112		MPA
<i>Vicecomodoro</i> Pessana	KC-130H	TC-70		Tanker
<i>Capitán</i> Cimatti	Dagger	C-437	Guns/Shafir-2 AA missiles	Escort (near Río Grande AB)
<i>Capitán</i> Robles	Dagger	C-414	Guns/Shafir-2 AA missiles	Escort (near Río Grande AB)

However, Captain Colombo was not waiting for orders from his commanding officers, but was personally following the MPA's communications:

I was awake that night. When the Neptune sent the first report, I remember I went and woke up *Vasco* (*Capitán de Corbeta* Augusto Bedacarratz) and told him: "*Vasco*, we have work to do".

Likewise, at 0730, still dark (as it was dawn at around 0900), *Teniente de Fragata* "Pibe" Machetanz woke up his friend *Teniente de Fragata* Mayora: "Armando, wake up, there is a target". Lieutenant Mayora jumped out of bed and went to the pre-flight room, but he thought it might have been a false alarm. He was still thinking about the previous day's botched mission. Already in the room was his section leader, Captain Bedacarratz. Now, they had to prepare the mission, as quickly as possible, to attack the target detected by the Neptune. Most of the squadron members were present, trying to be helpful.

The current doctrine would be followed, so the support of a Lockheed KC-130H Hercules tanker from the Argentine Air Force was coordinated. The navigation would be more or less direct to the target (after an update with the MPA maintaining contact), in order to launch and escape in the shortest time.

Meanwhile, the ground mechanics worked on the aircraft and missiles. At 0820 they confirmed that 3-A-202 (to be flown by



Bedacarratz) and 3-A-203 were ready, and the missiles had also passed the cumbersome pre-flight tests.

Another call from the Naval Aviation Command, which had been answered by Mayora (who happened to be near the phone), ordered the planes to take off at 0945.

The Neptune had updated the enemy position at 0845 and confirmed that there were three targets, one classified as large and two as medium. It was reported that there were several air search radars emitting and the Neptune considered it had been detected by the Task Force, which was 60 miles away.

Changing course, climbing and descending abruptly, the Neptune was trying to confuse the enemy and hinder any interception. The violent manoeuvres were taking their toll on the old aircraft, which even lost one of two Mk.44 torpedoes hanging from one wing. The order from the Naval Aviation Command was to stay low and only update the enemy position at 1000.

After the final details and with the information updated, the Super Étendard pilots put on their anti-exposure suits, survival gear and took their helmets. A van would take them, along with Captain Colombo, to the aircraft which were on a taxiway. Both pilots carried out checks on their aircraft and then tested the electronic systems. Everything was working perfectly. They taxied to the runway and after topping up the fuel consumed in the checks, prepared for the control tower clearance.

At 0944 Captain Bedacarratz took off, followed by Lieutenant Mayora. The weather was bad, with poor visibility and cloud ceilings of a few hundred metres, as well as showers. This was not all bad: a Sea Harrier combat air patrol would have enormous problems visually detecting the Argentine aircraft.

The planned refuelling point was 150 miles off Río Grande (275 miles from the target) and the manoeuvre was to take place at 15,000 feet. The tanker was the KC-130H Hercules (TC-70) under the command of *Vicecomodoro* Enrique Pessana.

At 1004, 15 minutes after take-off, they made contact with the tanker, filled their tanks in less than 10 minutes and continued towards the target. They were now 240 miles from the reported position of the enemy ships. They had been discreet. They had not emitted on radar; they had not used radios and their dark blue colouring concealed them in the clouds. They were the silent hunter closing in on its prey.

As the Super Étendards approached the enemy fleet, the Neptune's task was to update the position of the targets, and to do that, they had to climb and turn on their radar. All this time they had flown in circles at very low altitude, including a detour to the position where the ARA *General Belgrano* had sunk, to pretend they were an aircraft engaged in a search for survivors.

Finally, Proni Leston, who was already aware that a Super Étendard attack was on its way, ordered a final radar sweep, which was complicated by the precarious condition of the equipment: they had been changing radar crystals for hours and had finally run out.

Anyway, at 1035 the Neptune climbed to 1,250 metres (4,100 feet) and, considering itself already detected by all British ships, registered several contacts on its radar, positioned in latitude 52°48'5 S longitude 57°31'5 W and a few minutes later, three contacts in latitude 52°33' S longitude 57°40'5 W, evaluating them as two medium-sized ships and a large one. The Neptune violently headed out to sea and turned off the radar. The old AN/APS-20 had arrived with just enough to do its job.

Captain Proni Leston remembers what happened after:

Having collected that information, we went down again, quickly changed course and within a minute Bedacarratz came on the air with my nickname: "*Gaucho*" (no Englishman was going to call me that). I replied: "*Vasco*", and we passed him the target positions.



Lockheed KC-130 Hercules TC-70. Note the South-East Asia colour scheme of all Argentine Hercules. It shows the *Segunda Escuadrilla* badge as a remainder of the tanker flights for the Super Étendards during the conflict. (Alejandro Amendolara)

The targets were now 115 miles in front of the Super Étendards. Although they had had contacts on the RWR equipment when they were refuelling, as they stuck to the sea the Thomson-CSF BF had stopped giving alerts. Both attack aircraft had begun to fly at 25 metres (about 80 feet) a little earlier than the new doctrine had instructed, as they were concerned about the electronic activity at such long distances.

Two Sea Harrier CAPs were the first line of defence against Argentine attacks. At low altitude, the two Super Étendards went unnoticed some 30 miles south of one of the stations set up for the interceptors, possibly the one occupied by Lieutenant Commander Robin Kent and Lieutenant Brian Haigh of 801 Naval Air Squadron, orbiting at about 7,000 feet.

Unaware that they were so close to the enemy jets and overtaking them minute by minute, Captain Bedacarratz then entered the data into his inertial navigation system, while communicating with Lieutenant Mayora to check that they both had the correct information for the final leg to the target. According to Captain Bedacarratz:

We received the information from Captain Proni; that's an important moment in the mission because it has to be loaded into the systems, it consisted of about twelve numbers and an error in the loading can mean going to a place in the sea where there is absolutely nothing, thus failing the mission. Once we had entered the values, then we made the first communication with Lieutenant Mayora, because we hadn't spoken until that moment; that was our procedure, it was in total silence of any kind of electronic emission. We verified that what we had loaded was correct, our systems indicated the same and we continued our navigation, already correcting the course to the new position.

Up to this point, the whole of the tactic, hastily developed in the previous weeks, which seemed to ensure total discretion in the attack, had been fulfilled (with minor deviations). It only remained to be seen whether the theory would be validated in practice.

In the British Carrier Group, the Anti Air Warfare Commander (AAWC) on the aircraft carrier HMS *Invincible* declared "no hostiles within 200 miles" and confirmed that the alert status was Air Threat Warning Yellow, as it had been for the past two days. The AAWO (Anti Air Warfare Officer) of the Type 42 destroyer HMS *Sheffield*, Lieutenant Commander Nick Batho, left his post and went to the bridge to check the cloud base. The ship's commanding officer, Captain Sam Salt was in his cabin.

The *Sheffield* was a relatively new ship, accepted into service on 16 February 1975, virtually identical to the Argentine Type 42 destroyers against which Captain Colombo and his men had trained just weeks earlier. The previous two days had been days of pure alertness and the tension had given way to fatigue.

About 50 miles from the reported target position, both aircraft rose to about 2,500 feet and turned on their radars for only three sweeps. But nothing came up on the Agave radar display and, with only a few pulses on the intercom, both pilots informed each other of the lack of contact. They quickly returned to the safety of flying as if they were embraced by the waves.

However, the radar emissions were generating frantic activity in the British fleet. The Task Force was operating some 80 miles south of the islands' capital, as it was planned to close the gap so that the Sea Harriers of 800 Naval Air Squadron could carry out a bombing raid on the islands' small airstrips (Goose Green among them).

To the west (the main axis of the Argentine threat), between 18 and 20 miles from the main body, were the three Type 42 destroyers, HMS *Coventry*, HMS *Glasgow* and HMS *Sheffield*. With their long-range radars and Sea Dart missiles, they were the ideal vessels for early detection and destruction of any raiding aircraft, even if they had been designed with Soviet bombers and their long-range missiles (AS-4 Kitchen or AS-6 Kingfish) in mind. In a North Atlantic conflict, they would not be alone in searching for raiders, but would be assisted by land-based aircraft or operating under the umbrella of a large US carrier. But that was not the case here, they were virtually on their own.

Behind the destroyers were the frigates HMS *Yarmouth*, HMS *Arrow* and HMS *Alacrity* (whose main concern was anti-submarine warfare) and the destroyer HMS *Glamorgan* and, at the core of the fleet, the close escort (the Type 22 frigates HMS *Brilliant* and HMS *Broadsword*, equipped with Sea Wolf missiles), the logistics ships and both aircraft carriers (HMS *Hermes* and HMS *Invincible*). A typical defence in depth. There was, at that time, no Westland Lynx HAS.2 helicopter, with its electronic surveillance equipment, forward to the west. It was not until later in the day that one would be ordered to take up that position.

The fleet, inexplicably, had not detected Captain Proni Leston's Neptune, nor its electronic emissions. There had been some sporadic detections that day, but they had all been dismissed as false. This was the first indication that there might be an attack.

At 1057 the Agave emissions were detected by HMS *Glasgow* (Captain A.P. Hoddinott) and, a minute later, it reported that it had detected two contacts at 40 miles, which it maintained by two radar sweeps on its 965 and by several more on the 992 radar: "FLASH, CONDOR 245" (Condor was the nickname of the Agave radar at the time, later to become Handbrake). This information was not correctly received by destroyer HMS *Sheffield* and, to make matters worse, the AAWC (on *Invincible*) considered the information from *Glasgow* to be unreliable, downplaying its importance.

Inside *Sheffield* itself the situation was more confusing. The AAWO was still away from his post (his deputy too), the captain was still in his cabin and the satellite communications equipment (SCOT) was transmitting, which blocked the use of their own ESM equipment (UAA-1/Abbey Hill) for I band.

Also, the experience of the previous days indicated that the CSF Cyrano II radar on the Dassault Mirage III (which the Argentine Air Force had) was being confused with that of the Super Étendard, so on returning to his post the AAWO (and the rest of the combat team) considered that the radar emission might be coming from a Mirage. This was not unreasonable at the time. Intelligence information was unclear and contradictory. Some reports that had reached *Sheffield* stated that the Argentines had failed to operate the Exocets, while others stated that the Super Étendard lacked in-flight refuelling capability. Meanwhile, HMS *Invincible*, with its much more efficient Type 1022 radar, had also made a detection at 50 miles.

It took very little time for the two Super Étendards to reach the intended point for the second sweep (25 miles from the presumed target) and they quickly climbed to 600 feet (the cloud ceiling was at that height and the leader felt it best not to lose sight of his wingman so close to the fleet) and briefly broadcast with their radars. Now the enemy fleet was there. According to Captain Bedacarratz:

When we reached that distance, I indicated to Mayora that we had to ascend again; we ascended, we emitted three seconds again, and here we were already able on our radars to obtain the information that the Neptune had previously given us and we

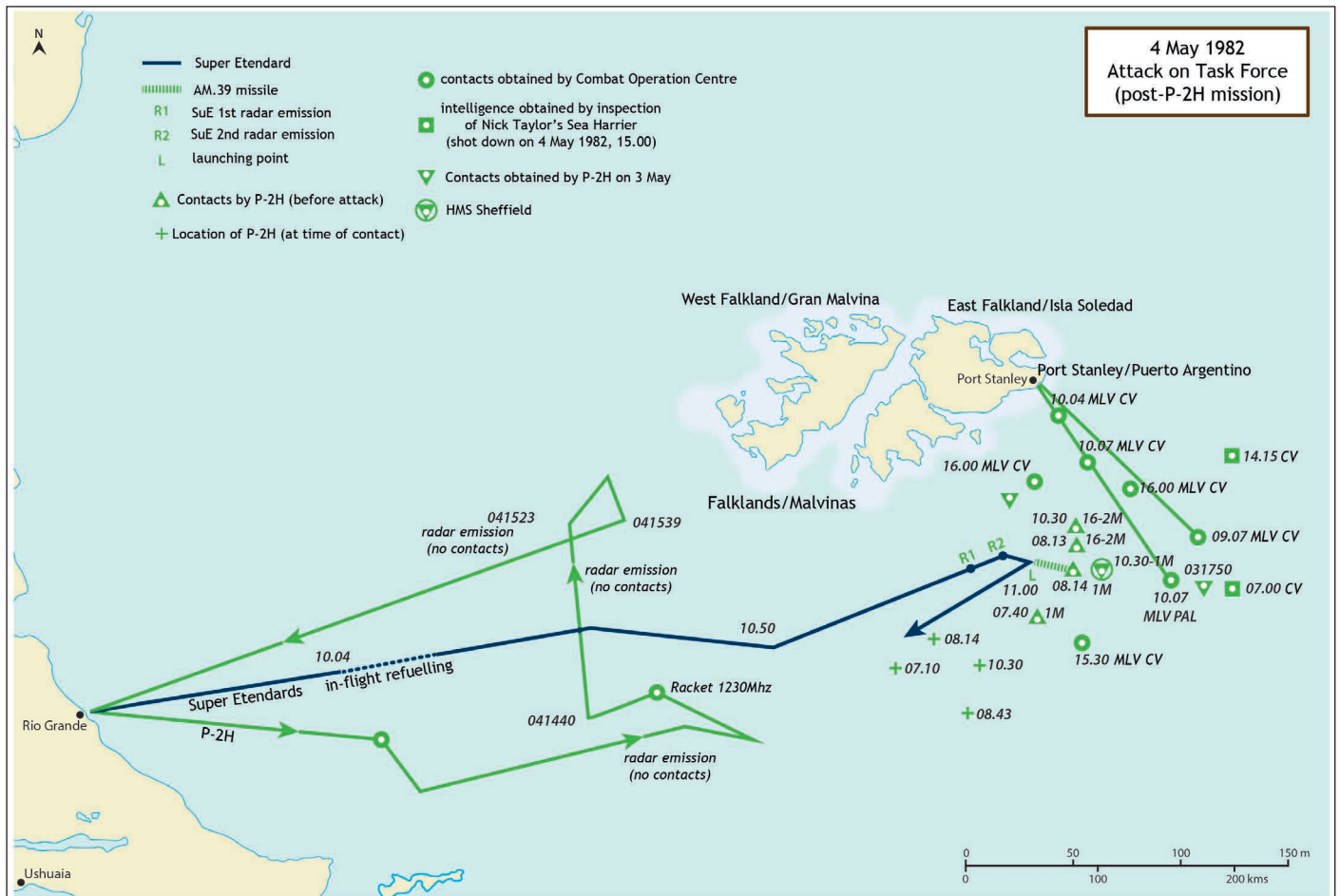




The Type 42 destroyer (D80) HMS *Sheffield* in the Indian Ocean, February 1982. The big antenna of the Type 965 radar is clearly visible, being just behind the radome covering the forward Type 909 radar. The radome aft covers the other available Type 909 radar. Each of these radars can target a Sea Dart missile. (Nathalmad)

located the fleet; it was in a corrected position, we were about 60km from the position of the large ship with the three medium-sized ones, just as Captain Proni said. We were able to verify this on our radars, so that from then on, we continued to emit permanently, because we had undoubtedly been detected at that moment by the fleet.

There were three targets together and one other further away, isolated, to the north, a few miles away from the position reported by the Neptune. At that point, the two aircraft turned right and headed straight for the largest target they saw on their radar. It was HMS *Sheffield*.



Flying at 480 knots (almost the maximum possible speed for the aircraft with the missile hanging under the wing), it would not take them long to reach the planned launch position. At 1100 *Sheffield* was still debating whether the contacts were spurious or not, and the fact that the Sea Harriers (vectored towards the contact position) reported no detections did not help. For the *Glasgow*, the contacts were real and, in self-defence, it proceeded to launch a chaff curtain which covered the ship.

The Super Étendards were already extremely close and the radar reported an A for “*accroché*”: the target was locked on. Bedacarratz ordered his wingman to launch missiles and at 22 miles from the target (even though for the British the aircraft was much closer, some 11 miles away) and flying at 340 feet, he pressed the firing button.

The AM-39 Exocet (rated at medium impact altitude, large search window and proximity fuse disabled) detached from the aircraft, dropped briefly (even though it looked to Bedacarratz as if it were about to fall into the water) and ignited its rocket engine.

*Teniente de Fragata* Mayora did the same:

We get into a squall, I don't see Bedacarratz, and when we come out of the squall, I see fire under his plane. He had given the order to launch and I hadn't heard it. I launch. When you're a pilot, you're used to the fact that when you press a button on the guns, it's immediate. And with the Exocet it's not like that. It takes three seconds, an eternity. Until suddenly the missile, which weighs 650 kilos, is released. The plane is off-balance and we're spinning at very low altitude and at full speed.

*Glasgow's* AAWO was still trying to convince the AAWC in *Invincible* that it was a real attack, but to no avail. He signalled “FLASH, ZIPPO ONE. BRUISERS INCOMING. BEARING 238-

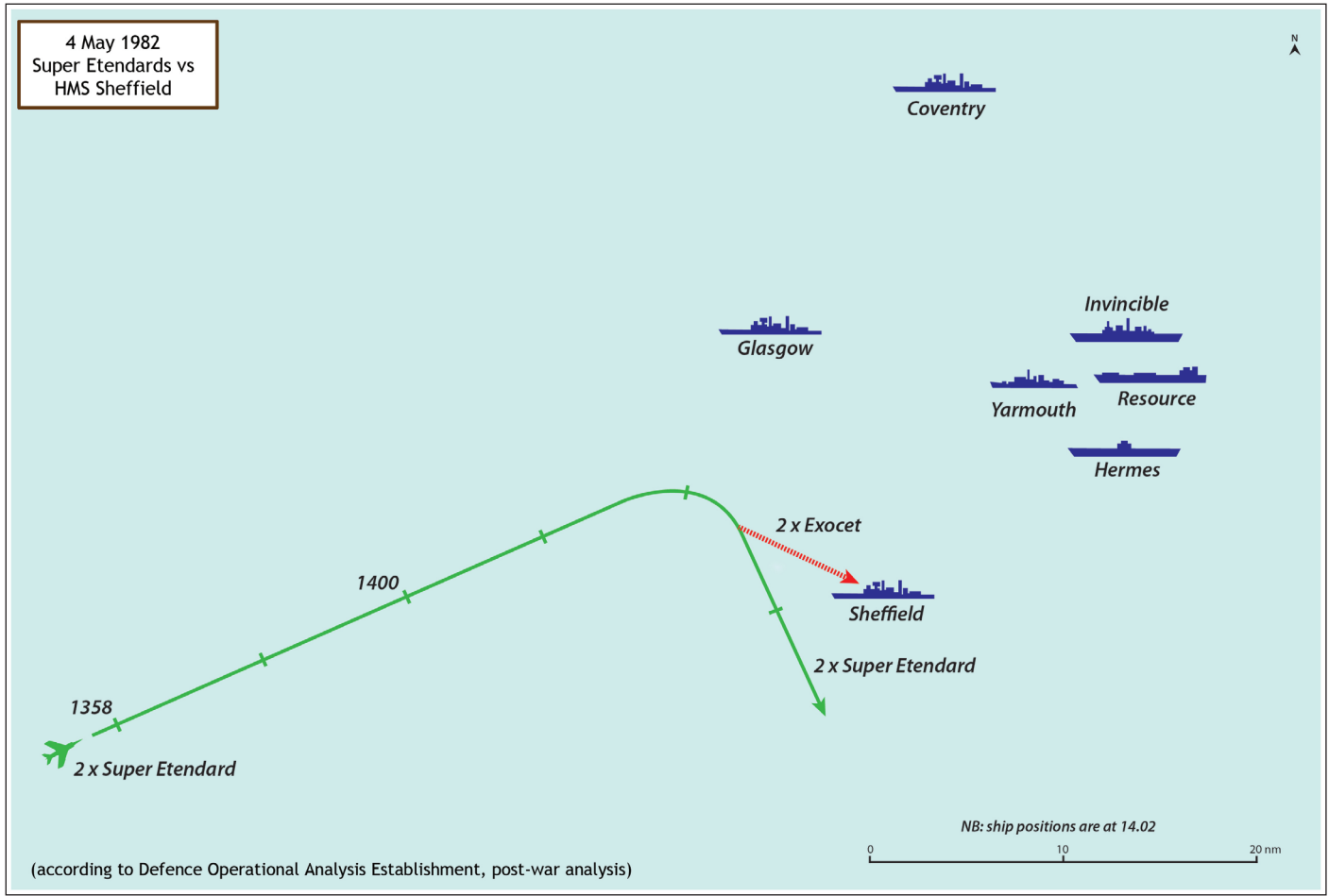
12NM” which is translated as a missile attack in progress, replying again from the carrier that it was a false alarm, to which he replied “Negative, the force is under attack!”

By this time, *Sheffield* had also assumed they were under air attack, but the situation remained unclear. It already had detections on its own radar and the SCOT had been switched off, so it was able to corroborate with its electronic gear that there was at least one Exocet missile in the air and that its seeker head was locked on to a target. None of the contacts had been picked up to fire a Sea Dart missile at them, nor had any chaff been ordered to be launched.

In fact, the first true detection of the incoming Exocet missile was made by an officer on the bridge. According to Lieutenant Peter Walpole, Signal Communications Officer, *HMS Sheffield*:

*The Sunday Times* quoted me as saying “My God, it's a missile”, whereas I think what I actually said was, “What the fuck is that?” We had only a matter of seconds before impact, but I remember distinctly that it was beginning to draw to the right...I shouted twice down a handset to the ops room that they were to take cover. I wanted to go to the bosun's mate position to activate the main broadcast alarm. But I never got there, and at the moment of impact was lying on the deck. It really was the most frightful crash, and a very strange situation, like your worst car accident, but ten times worse.

One of the Exocets struck right where it was intended to hit, in the middle of the *Sheffield* and about three metres above the waterline. It penetrated slightly into the ship and exploded inside, at 2 deck starboard between the Galley and the Forward Auxiliary Machinery Room (FAMR) and Forward Engine Room (FER), leaving a hole 15 feet by four feet. It was 1112. The explosion and the remaining fuel







RFA *Resource* from the deck of HMS *Invincible*, during Fleet Ex 1-90. *Invincible*, *Resource* and *Hermes* were most probably the “two medium-sized ships and a large one” detected by Neptune 2-P-112 at 1035. The other contact detected (to the south) was probably *Sheffield*. (US Navy)

from the missile caused a huge fire, filling much of the ship rapidly with smoke. The impact caused the fire suppression system to lose pressure, which could never be fixed.

The other Exocet splashed in the water near the *Sheffield*, causing no damage. It is impossible to know which of the two missiles launched was the one that finally struck.

By this time, the AAWC on *Invincible* remained unconvinced of an air attack, refusing to change the Alert from yellow. It did not help that the first information spoke of a torpedo attack, causing many of the ASW screen Sea Kings to converge to search for the Argentine submarine, with the frigates *Arrow* and *Yarmouth* joining in later.

*Yarmouth*, also at 1137, reported another Exocet missile passing 1,000 yards away and falling into the water. *Glamorgan* was launching chaff violently. All was confusion.

Lieutenant Commander Ian Inskip, on HMS *Glamorgan*, recalls:

At 1420z, *Sheffield*, on picket duty, reported she was on fire with a 15ft hole on her side. She was twelve miles from us and I could see a cloud of yellowish smoke rising amidships. Five minutes later, I saw two columns of smoke and *Sheffield* was asking for helicopter assistance. Barely a minute later, *Yarmouth* reported a missile overhead and shortly afterwards a splash was seen astern of *Alacrity*. Believing the force to be under further attack, *Glamorgan* fired chaff Charlie and a full salvo of chaff Delta and turned down wind at wind speed to remain within the chaff pattern. A flash had been seen on the horizon, believed to be another missile launch. Chaff Hotel was dropped by helicopters.

While on HMS *Sheffield* the fire was growing, both Super Étendards had already set course for Río Grande. Tension was still high and grew momentarily when the leader received electronic emissions from the aircraft's tail BF sensor. They were being sent by

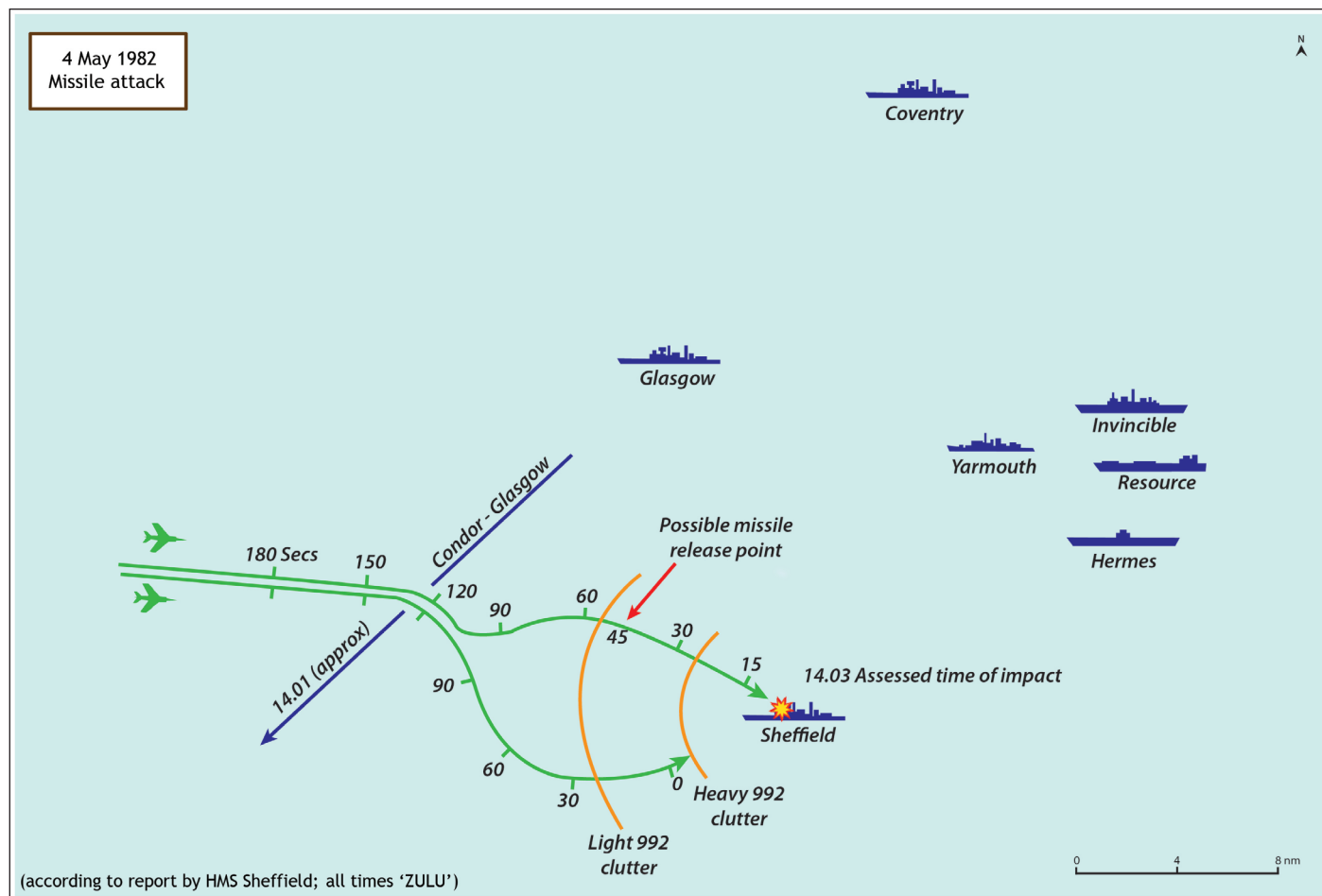
Mayora, who had temporarily fallen behind and forgotten to turn off his radar.

It was not until they were out of the danger area that they communicated with the Neptune and reported: “Launch successful, we are returning”. The Neptune passed that information on to Río Grande and from then on everyone relaxed a little. They would be coming back too. They did not know if they had hit, but at least they could see that the missile was leaving the aircraft towards a target. That was enough, as a month before they did not know if this new system would actually work.

About 150 miles from Río Grande, both aircraft received a communication from the KC-130 Hercules, inviting them to refuel, which they declined as they had plenty in their tanks. By this time, an Air Force IAI Dagger flight (call sign POLLO), armed with RAFAEL Shafrir-2 air-to-air missiles, was escorting the tanker, as well as providing protection for the returning Super Étendards. They were orbiting between 20,000 and 22,000 feet, some 115 nautical miles from the base, only completing their task when the KC-130 reported that it was leaving the area as it was no longer required.

At Río Grande, the information of the attack had been correctly received by the control tower, then reported to the Combat Operations Centre and to the pilot's ready room. They were all assembled there. The call was answered by Lieutenant Barraza, who quickly turned and shouted that they had been able to launch and were returning. The celebration was like a football goal (including caps and maps being thrown up in the air) and, when they heard the noise, the ground crew joined in.

At 1204, both Super Étendards completed the landing safely. Everyone was there to welcome the pilots, and even those who had not heard the radio communications could see that both aircraft were coming back without the AM-39s under their wings. The mood was one of joy.



Lieutenant José Alberto Andersen was a Neptune crewman (he would not be flying that day) and was waiting on the apron for his comrades:

From those minutes I remember the image of Mayora raising his left arm with his thumb up as he slowly brought his Super Étendard to the chocks. The response to that gesture was a great cheer from all of us who were on that apron. In my case it was short-lived; I soon realised that, at that same moment of joy, not far from there, there were surely dead and wounded, men suffering from that attack the same as our comrades on board the ARA *General Belgrano* had suffered just two days earlier. I felt that this was not something to celebrate and I felt very bad.

Shortly afterwards 2-P-112 landed, with rivets blown off by the structural strains and with very little fuel (only 60 litres in each tank). Captain Proni Leston got out of the plane, touched his bow wheel and thanked it: "Old man, thank you for bringing me back".



*Teniente de Fragata "Huevo" Mayora just landed, after the attack on HMS Sheffield on 4 May. (Segunda Escuadrilla Aeronaval de Caza y Ataque historical book)*

With this flight, the ageing Neptune was practically out of the war. It would never be the same again.

Both Super Étendard pilots went to make their post-flight report. Meanwhile, to assess the result of the attack mission, as well as to obtain information to evaluate a new operation taking advantage of the existing situation of confusion, at 1237 the Neptune 2-P-111





*Capitán de Corbeta Augusto Bedacarratz leaving the cockpit of 3-A-202, after his mission. (Segunda Escuadrilla Aeronaval de Caza y Ataque historical book)*

under the command of Captain Julio Pérez Roca took off from Río Grande. The order from Espora had been clear:

TAKE OFF AND REESTABLISH CONTACT TO EVALUATE  
THE RESULTS OF THE SUPER ÉTENDARD ATTACK.

The Neptune therefore headed towards the area of the attack, where the Port Stanley/Puerto Argentino radar was already reporting a significant increase in air activity. Perhaps it was not a good idea to send an MPA, slow and unarmed. But it was an order. So they moved in.

A radio communication intercepted (by chance) at the underground Combat Operations Centre, at 1552, alerted them about an imminent danger over the Neptune. A British voice was

eventual sortie), a message from the BBC World Service (which Lieutenant Barraza had tuned on his radio) announced that HMS *Sheffield* had been struck by a missile and had caught fire.

Lieutenant Mayora recalls the reaction to hearing the news in the afternoon:

Everyone was happy. I wasn't, because our target was the carrier. The only way we could have changed the course of the war was sinking a carrier. That's what I felt: that we could have made a change. Sinking the *Sheffield* hurt them, but it wasn't crucial. If we had sunk a carrier, it would have been different.

Meanwhile, despite efforts to save the ship (involving the frigates HMS *Yarmouth* and HMS *Arrow*), HMS *Sheffield* suffered an uncontrollable fire.

At 1450, its commander, fearing that the fire would cause an explosion, ordered all hands to abandon ship. The attack left 20 sailors dead and 24 wounded. *Sheffield* would remain afloat for several days and would sink for good when towed towards South Georgia/Georgias del Sur by the frigate HMS *Yarmouth* on 10 May.

It was clear to both sides that the Argentine Super Étendard was able to make effective use of the AM-39 Exocet missiles they had purchased from France.

While the neutralisation of the *Sheffield* as a combat unit had huge political repercussions, with Defence



*Capitán de Corbeta Augusto Bedacarratz paints the "kill mark" silhouette of HMS Sheffield on his aircraft. (Argentine Navy)*





Pilots and ground crew pose with the freshly painted kill mark (HMS *Sheffield*) on 3-A-202. (via Claudio Meunier)



HMS *Sheffield* shortly after being hit by an AM-39 Exocet missile. The missile hit precisely where it was intended to hit, in the centre of the target. (Royal Navy)





The Type 21 frigate HMS *Arrow* attempts to help fight fires on HMS *Sheffield*. By this time, the fire had spread and, shortly afterwards, the crew was ordered to abandon the ship. (Royal Navy)



The Type 42 destroyer HMS *Sheffield*, now completely burned out and abandoned. The fire caused by the missile had proved catastrophic. (Royal Navy)



Secretary John Nott having to explain himself to Parliament the following day, on the battlefield British forces were trying to work out what measures to take to avert the Exocet threat.

Three missiles remained.



Time and Newsweek magazines front cover (both 17 May 1982). The attack on *Sheffield* was an important milestone in modern warfare. (Time and Newsweek)

9

## 5 – 8 MAY: EXODUS

Since bombs and shells began falling on the Falklands/Malvinas Islands, everyone at the Río Grande base knew that they could come under attack at any moment. Even more so since the attack on *Sheffield*.

*Cabo Primero* Carlos Banegas was already deployed at the base:

After the attack on *Sheffield* came the order that we should scatter the planes and not leave them on the base, because an intelligence report (as our commander told us) said that commando attacks could come at any moment to destroy the planes or kill us. We slept in various places and ate where and when we could, in the mess hall, in the hangar... The most difficult part was the nights on guard duty, because the airplanes were far away and sometimes on the road, and it was very cold. We slept on cardboard or on the floor.

From that moment on, we began to experience several air raid alarms (where the personnel had to seek shelter in various trenches that had been dug along the base, remaining there until ordered otherwise) and even, on one occasion, the alarm of a ground attack was sounded.

Although protection measures had been tightened, on 7 May an event occurred that seemed to have no solution. Enemy ships were approaching to make a naval bombardment on the base.

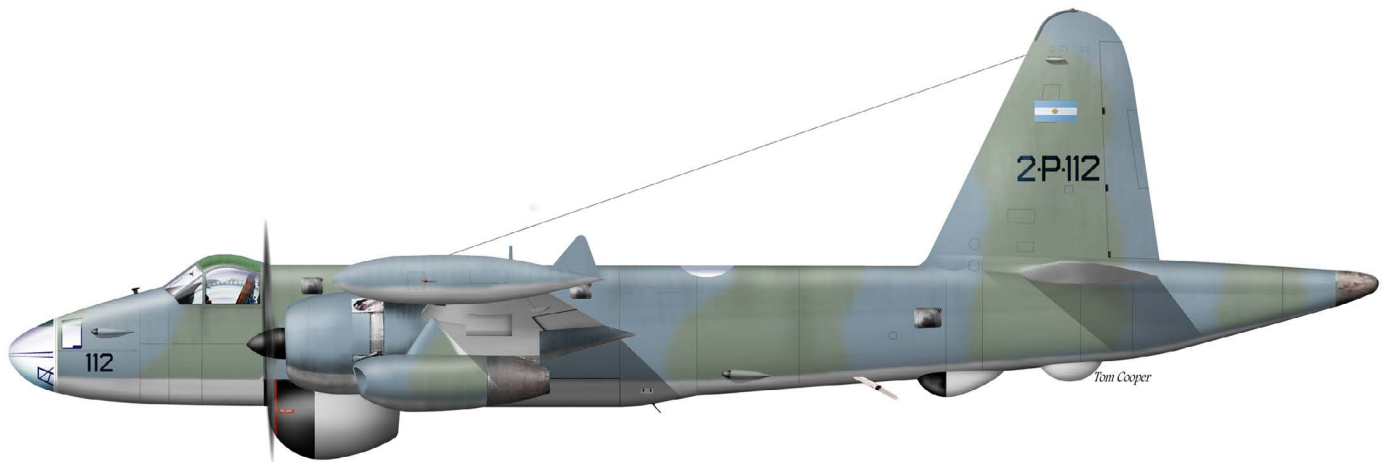
Indeed, on 7 May at 1350, the Lockheed L-188A Electra 5-T-1 of the First Naval Air Mobile Logistics Support Squadron, commanded by *Capitán de Corbeta* Marcelo Bóveda and co-piloted by *Teniente* Alejandro Cagliolo, took off from the base. Their mission was to find the Type 42 destroyer HMS *Exeter*, which naval intelligence believed was approaching the area of operations from the Pacific Ocean via Cape Horn. This was, in fact, not true, as on that date it was still in Nevis (West Indies), in Caribbean waters.

While the Electra was not the best reconnaissance aircraft, it had a weather radar that enabled it to detect naval targets in favourable conditions.

The aircraft set course for the south-east of the Isla de los Estados, then had to explore Cape Horn and finally land at Ushuaia.

At 1455, flying at about 12,000 feet, the Electra's radar detected several ships to the north-east of its position and, approaching to investigate, the crew sighted at a great distance (23 nautical miles) a "V" formation of five ships, which they considered to be grey and





Starting from 1958, the *Escuadrilla Aeronaval de Exploración* (Naval Exploration Squadron) of the COAN received at least 16 Lockheed P2V Neptunes (redesignated P-2 in September 1962). They saw intensive service during the 1960s and 1970s, especially during the standoff with Chile in 1978. Due to the US arms embargo imposed in 1977, only two SP-2Hs (formerly P2V-7s) were still operational as of 1982: serials 2-P-111 and 2-P-112. By this time, both aircraft wore a disruptive camouflage pattern consisting of medium sea grey (BS381C/637) and grey-green (BS381C/283) on top surfaces and sides, and light gull gray (FS36622) or light aircraft grey (BS381C/627) on undersides. Led by *Capitán de Corbeta* Proni Leston and *Capitán de Corbeta* Sepetich, the crew of Neptune serial number 0708/2-P-112 played a crucial role in finding HMS *Sheffield* on 4 May 1982. Due to the lack of spares, the type was retired from service only days later. (Artwork by Tom Cooper)



Out of five Super Étendards available, *Unidad de Tareas 80.3.1* – Task Unit 80.3.1, the forward detachment of the *Segunda Escuadrilla Aeronaval de Caza y Ataque* (insignia shown inset in the left upper corner) – deployed four to BAN Rio Grande during the Falklands/Malvinas War of 1982. The fifth aircraft, serial number 0751/3-A-201, was used as source of spares. Serial number 0752/3-A-202, illustrated here, became the second most successful of the conflict. On 4 May 1982, while piloted by mission commander *Capitán de Corbeta* Augusto Bedacarratz, it scored a lethal hit on destroyer HMS *Sheffield*. 3-A-202 was flown by mission commanders on 23, 25, and 30 May, eventually earning itself two kill markings (shown inset): one for 'sinking' *Sheffield*, and other for a 'probable hit' on HMS *Invincible*. (Artwork by Tom Cooper)



The most successful Super Étendard of the *Segunda Escuadrilla Aeronaval de Caza y Ataque* during the Falklands/Malvinas War was serial number 0753/3-A-203. While piloted by *Teniente de Fragata* Armando 'Huevo' Mayora, it took part in the successful attack on HMS *Sheffield* on 4 May 1982 in company with 3-A-202, piloted by *Capitán de Corbeta* Bedacarratz. On 25 May 1982, *Capitán de Corbeta* Roberto 'Toro' Curilovic flew 2-A-203 to launch the AM-39 Exocet that wrecked SS *Atlantic Conveyor*. Both kill markings were subsequently applied on the forward fuselage. Illustrated below the jet is an AM-39 Exocet missile as acquired by the COAN in 1981–1982: with the plastic cover for its seeker head in light grey, and the guidance section in dark grey. 3-A-203 and 3-A-202 also took part in the unsuccessful mission on 23 May 1982. (Artwork by Tom Cooper)



The standard configuration for Super Étendards during anti-ship attacks during the Falklands/Malvinas War included a single AM-39 Exocet missile on its special hardpoint under the starboard (right) wing, and one 1,100-litre drop tank under the port (left) wing. Installation of the Exocet required the replacement of both internal guns with a container including additional equipment necessary to support the operation of the missile. Finally, a shorter and stubbier 590-litre drop tank was installed on the centreline. The third most successful Argentine Super Étendard was serial number 0754/3-A-204 which, on 25 May 1982, was piloted by *Teniente de Navío* Julio 'Mate' Barraza, and launched a single AM-39 Exocet while accompanied by 3-A-203. With the mission resulting in the sinking of SS *Atlantic Conveyor*, the jet was decorated with an appropriate kill marking after the war. (Artwork by Tom Cooper)



The fifth Argentine Super Étendard of 1982 was serial number 0755/3-A-205. This jet flew only one mission during the conflict: on 30 May 1982, *Teniente de Navío* Luis 'Cola' Collavino piloted it as a wingman to 3-A-202. It carried no Exocet on that sortie as none were left: instead, it had the usual container with two 30mm DEFA guns and their full load of 125 shells each, and carried both underwing drop-tanks. As usual for all aircraft of this type in service with the Argentine – and French – naval aviation of the time, Second Squadron's Super Étendards were all painted in the French version of extra dark sea grey (BS381C/640, similar to FS36076) on top surfaces and sides, and off-white on undersurfaces. All wore the full set of standard maintenance and warning markings around the fuselage and wing, and the unit insignia on the forward fuselage. (Artwork by Tom Cooper)



Argentina was one of the biggest export customers for the North American T-28: its air force acquired 52 T-28A Trojans, while the naval aviation purchased 65 examples from the French Air Force, most of which were modified to the T-28S standard. About a dozen of the latter were further modified to the T-28P standard, including the installation of armour plates around the forward cockpit. In addition to serving as elementary and advanced trainers for future Argentine naval pilots (including training in operations from the aircraft carrier *ARA 25 de Mayo*), they retained their combat role, and could be armed with pods for 7.62mm machine guns on inboard underwing pylons, and various bombs and unguided rockets. The example illustrated here, serial 0619/3-A-202, was originally manufactured for the USAF with the US-FY-serial 51-3702 and converted to the Fennec No. 101. Amongst other duties, it was used in Argentina for flight testing of the Martin Pescador guided missile. (Artwork by Tom Cooper)





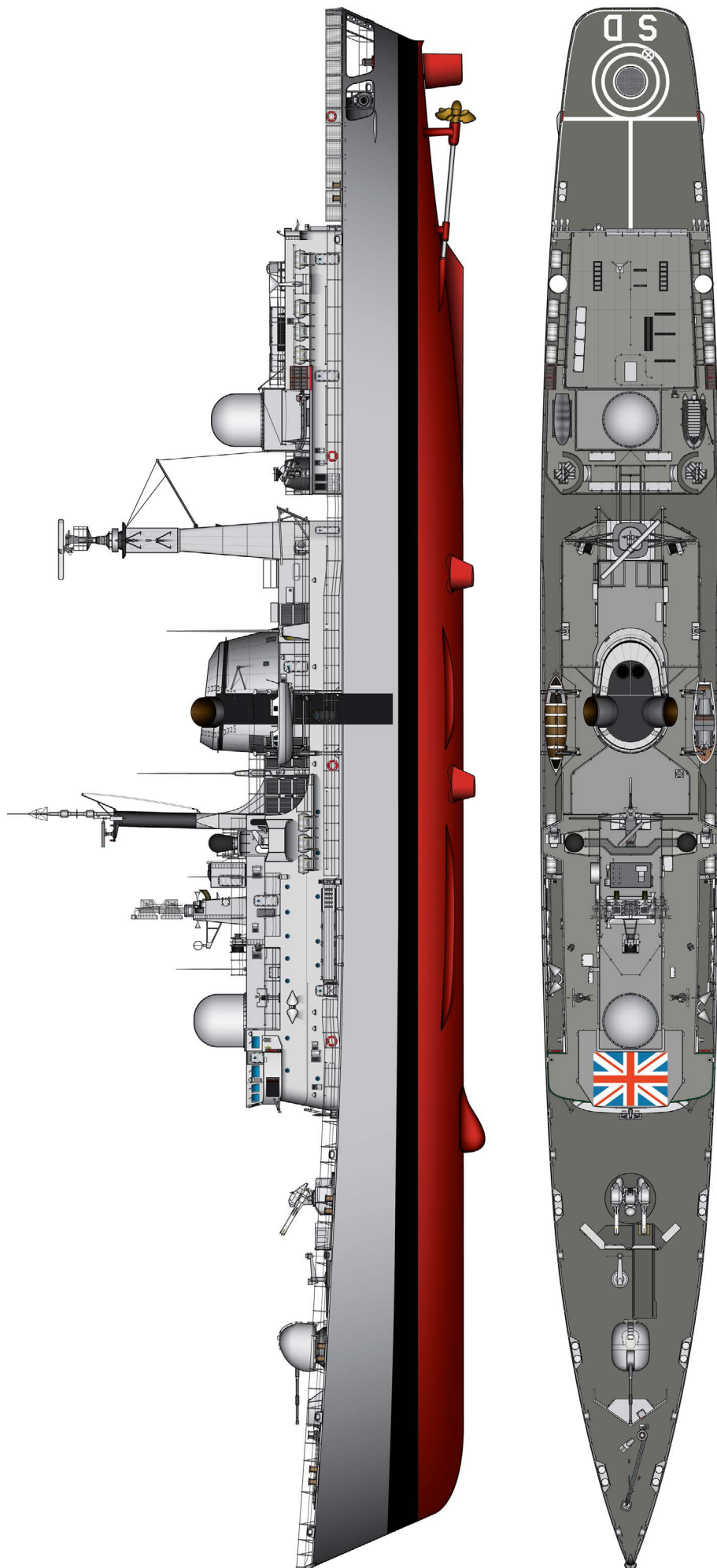
At first glance the Dassault Mirage 5 of the *Fuerza Aérea Argentina* (FAA) might appear unrelated to the story of the COAN Super Étendards during the Falklands/Malvinas War. However, two Dagger As – serials C-437, piloted by *Capitán* Cimatti, and C-414 (illustrated here), flown by *Capitán* Robles – provided top cover for the KC-130H tanker on 4 May 1982, and two others were scrambled to save the SP-2H Neptune involved in tracking down HMS *Sheffield* later during the day. Manufactured in France by several subcontractors of Dassault, and then officially described as made by Israel Aircraft Industries and nicknamed *Nesher* when in Israeli service of the 1970s, the type was redesignated the *Dagger* for the sale to Argentina. As of 1982, it was still relatively new in FAA service: 26 were acquired in 1978, and another 13 in 1980. All were operated by *Grupo 6 de Caza*, *VI Brigada Aérea*, which deployed two squadrons during the conflict. For intercept purposes they were usually armed with a pair of Israeli-made Shafrir Mk.2 infrared-homing air-to-air missiles, and a full load of 250 shells for the DEFA 30mm guns. (Artwork by Tom Cooper)



The FAA had only two KC-130H Hercules tankers as of 1982, and their crews were kept extremely busy throughout the Falklands/Malvinas War. As well as supporting operations of the Air Force A-4B and A-4C Skyhawks, both Hercules tankers saw intensive operations in support of COAN Super Étendards. On 4 May 1982, the crew led by *Vicecomodoro* Luis Litrenta flew serial number TC-70 to refuel serials 3-A-202 and 3-A-203 during their attack that resulted in the sinking of HMS *Sheffield*. On 30 May, both this KC-130H (piloted by *Vicecomodoro* Roberto Noé) and serial number TC-69 supported the pair of Super Étendards and four A-4Cs in their attempt to attack HMS *Invincible*. The main illustration shows TC-70 as it appeared during the Falklands War, while still wearing a large sticker from International Air Tattoo 81. By 1983, this was replaced by an even bigger sticker related to an Argentine expedition to the Antarctic, along with the crests of *Brigada Aerea V* and the Second Squadron, COAN. (Artwork by Tom Cooper)



This reconstruction shows the two A-4C Skyhawks from *IV Brigada Aérea* (insignia shown inset) that survived the combined attack on the Royal Navy Task Force on 30 May 1982 – perhaps the most controversial operation including Super Étendards during the Falklands/Malvinas War. The main artwork shows serial number C-321, flown by *Primer Teniente* Ernesto Ureta; the inset shows the front section of serial number C-318, piloted by *Primer Teniente* Alferez Gerardo Isaac. Both have a standardised camouflage pattern in light grey and dark olive green on top surfaces and sides, and for their mission on 30 May were armed with three BRP.250 bombs installed on a triple ejector rack under the centreline (not visible in the profile because of the large drop-tanks, which were painted in medium grey on both jets). Both C-318 and C-321 received 'kill markings' in the form of the silhouette of HMS *Invincible* applied in red on their forward fuselage. (Artwork by Tom Cooper)



Named after a city in Yorkshire, and constructed by Vickers Shipbuilding and Engineering at Barrow-in-Furness, HMS *Sheffield* (D80) was commissioned by the Royal Navy on 16 February 1975. It was the first of the Type-42 guided missile destroyers. The ship played an important role in introducing to service and working up the then brand-new and highly-promising GWS-30 Sea Dart long-range, surface-to-air missile system, the Type 909 radar fire-control system for Sea Dart missiles, and the Abbey Hill electronic warfare systems. After, finally being declared operational in 1980, she underwent a refit, and then participated in Exercise Roebuck, during which she fired five Sea Darts. Following Exercise Ocean Safari in November 1981, *Sheffield* was sent on patrol in the Indian Ocean and Persian Gulf. As of late January 1982, the ship was undergoing maintenance at Mombasa, when Captain James Salt took over command: in March, she transited through the Suez Canal and took part in Exercise Spring Train in the Atlantic before, on 2 April 1982, ordered to join the Task Force assembling to retake the Falklands/Malvinas. During the voyage to the South Atlantic, her hull number was removed, and a thick black identification stripe applied down the funnel and the hull, to better distinguish her from two Type-42 destroyers operated by the Argentine Navy.

On 4 May 1982, HMS *Sheffield* was struck by one of two AM-39 Exocets while underway as the southernmost of three Type-42 destroyers serving as forward anti-aircraft pickets (the other Exocet missed and hit the water about 0.4 nautical miles off her port beam). The missile penetrated the starboard side of the hull, at deck level 2, about 2.4m above the waterline, scythed through the junior ratings' scullery and into the forward auxiliary machinery room, creating a hole about 1.2 metres (3.9ft) by 3 metres (9.8ft). The resulting damage promptly disabled the ship's electrical distribution systems and breached the pressurised sea water fire main: the cumulative effects greatly hampered firefighting efforts and eventually doomed HMS *Sheffield* to be consumed by fire. The destroyer foundered while under tow on 10 May 1982. (Artwork by Ivan Zajac)





One of the Lockheed L-188PF Electras of the Argentine Navy, in this case 5-T-2 "Ushuaia". The first three Electras acquired by Argentina, which were incorporated in 1973 and 1974, were all second-hand and had flown for the first time with American Airlines. (Histarmar)

with the physical characteristics of destroyers. Their course took them towards the vicinity of Río Grande. They could only be British ships. Civilian vessels are not generally grey, do not resemble a destroyer, and certainly do not move in formation.

The aircraft, however, considering that the ships might have long-range anti-aircraft weaponry (such as Sea Dart missiles), remained at a safe distance, reported the contacts and continued the search for the *Exeter*. At 1830, it finally landed at its destination.

As soon as the information arrived in Río Grande, a commotion started, which led to the take-off of a Neptune (2-P-111), which took place at 1641, and an Air Force Gates Learjet took off a minute later. The Learjet finally reported a contact at 1720, while the Neptune failed to detect any warships. Nor could the fast attack craft *Intrépida* (Lürssen TNC 45-class), which was close to the position, find any radar emissions on their electronic surveillance gear.

In the midst of the tension, at 1800, the Air Force aircraft reported that the Neptune had been shot down by an enemy missile. Four minutes later, it reported that it had been a mistake, that there had been no missile. Anyone could easily imagine the faces in Río Grande upon receiving both pieces of news.

At 1808, a naval intelligence officer also confirmed that the ships were not Chilean: they were therefore definitely British. With this information, given the characteristics of the ships and their course, it was estimated that the base would be under naval gunfire at night, which was not at all unreasonable given the situation.

While the base was put on high alert, all aircraft and equipment were ordered to disperse, and non-essential personnel were to be quickly evacuated. The Marines, meanwhile, prepared to protect the base from a possible post-shellfire landing by moving to defensive positions near the sea.

Air Force airplanes at Río Grande would be directed to the bases at *Comodoro Rivadavia* and Río Gallegos. At the latter base, too, four Dassault Mirage III interceptors were put on standby, with pilots ready to depart in their cockpits. But the Second Naval Fighter and Attack Squadron, according to the mission imposed by COAN, had to deal with the intruders first.

It was a night mission, far from anything they had planned and trained. The two pilots who had the most experience in night flights (obviously not in Super Étendard) were *Capitán de Corbeta* Roberto "Toto" Agotegaray and *Capitán de Corbeta* Roberto "Toro" Curilovic, which is why they were selected for this dangerous mission. It became clear to them that there would be only outdated information. The Super Étendard was to find the target and launch the missiles on it. They would not fly as a section but would take off and attack separately from each other and at a much higher altitude than they usually flew, in order to have a chance of detecting the target with the radar.

The weather was bad, with fog and low cloud, which further complicated the operation: a night flight at high altitude, towards an enemy formation of uncertain composition and whose location was not precise. The pilots were told that if the planes were unable to land (bad weather was expected on all runways in the area by the time they had to land) and ran out of fuel, they would have to consider ejecting over the Río Grande base.

The Southern Air Force, however, ordered a KC-130 tanker (call sign KIKO) to take off in support of this mission, which would be controlled from Río Gallegos and orbit at 20,000 feet southeast of Virgenes Cape (on the Argentine mainland). None of the Argentine naval pilots were informed about this aircraft.

The order, of which Captain Colombo was not (from the beginning) convinced at all, was to take off and attack. With Curilovic and Agotegaray in the planes, Colombo approached his Operations Officer:

"Toto, what do you think?"

"Sir, I don't see how this can end well, but now, consider that I'm just another pilot carrying out an order."

"Well, all right, go ahead."

From there, the squadron Commander returned to the bunker, where he tried to convince Captain Héctor Martini that the mission was pointless, but Martini told him there was nothing he



A Soviet Union Project 394AM trawler, like the *Zheleznogorsk* that was detected near Isla de los Estados. (Mikhail Galyanin)

could do. Despite this, Martini was not even convinced that such warships existed.

Captain Colombo finally called Espora and advised his superiors at COAN that he was not going to allow the mission to go ahead and, if they insisted, he would immediately resign as the squadron commander. He would stay on the base and not shy away from war, but they would have to appoint another commander.

None of this was welcomed on the other side of the line. It was clear insubordination in the midst of a war action, punishable by the death penalty or life imprisonment. Captain Colombo's personal war continued. He then returned to his two pilots and began to make gestures and hit the planes, telling them both that they had to get out, that the mission was aborted. His fear was losing two aircraft, two missiles and two pilots on a flight to nowhere.

As Captain Colombo recalls:

I ran out. I crossed the runway and they were ready on board the planes. And they didn't want to get out, they wanted to take off. Luckily the fog was above and I started hitting them on the side of the fuselage: "Get the fuck out, get the fuck out" and then they got out of the planes.

It was already pitch dark (the base was under darkness); they were practically alone. When the Río Grande runway began to be covered by a thick fog that made it impossible to see more than 30 metres (and rendered the runway inoperable), both pilots got out of the aircraft and ended the mission. Captain Agotegaray commented:

As soon as I got out of the plane, with my helmet and flight charts in my hand, a mechanic told me that they were about to tow the aircraft. There was hardly anyone at the base. They started to take the plane away and I was left alone. I saw people walking towards the route and, when I started to join them, in a surreal scene, Colombo appeared in a taxi full of people and told me that there was room and that I should get in. I sat on top of Colombo

(clearly, there was no room) and we headed for the 5 Marine Battalion quarters, where we spent the night.

The Super Étendards (with the Exocet missiles still under them) were towed to the city of Río Grande. Two spent the night in the city centre and two others on an access road, protected by marines. Everyone awaited the attack.

The next morning, a further reconnaissance flight by Neptune confirmed that the vessels were indeed deep-sea fishing vessels, possibly from the Eastern Bloc. At 1200 hours, the Argentine Navy was informed, in a routine message, of the position of the Soviet fishing vessel *Zheleznogorsk* (one of several of Project 394AM) of 2,300 tons and 84 metres in length: the position matched that of the contacts reported by the Neptune. It had been a false alarm.

They were minutes away from going airborne, launching their missiles at the trawlers and ending up losing two aircraft (and perhaps a pilot), as it was likely they would have to eject over the base.

On the British side, at 0750 this 8 May, with the weather improving after several foggy days, a flotilla of incoming small vessels was detected near the carriers. A general alert was piped, and the men rushed to their battle stations. Two escort ships opened fire at long range on the raiders, while others rushed towards them. Helicopters took off to investigate and destroy. Twenty minutes later, they proved to be just birds. Just another day in the war.



## 9 – 23 MAY: CHANGING TACTICS

On the morning of 23 May, the Combat Operations Centre (COC) located in the capital of the islands, analysing British air movement, concluded that there was possibly an enemy aircraft carrier at latitude 52°00' S, longitude 55°30' W.

This data came from the Westinghouse AN/TPS-43 radarmen of the Argentine Air Force, also located on the Falklands/Malvinas, which for several days had been methodically recording the places where the echoes appeared and disappeared on the screen. This gave them an approximate location of the aircraft carriers.

The set-up of that centre was really improvised and under-resourced, as Captain Luis Anselmi, commander of the Malvinas Naval Air Station, recalls:

On the very night of 1 May we started the Combat Operations Centre. We had to improvise a movement board with a transparent plastic sheet, where we drew the distance circles and azimuth radials freehand. At the same time, we improvised operators, training two conscripts in one night, who would do the night watch. On 2 May we settled in the same room where the Air Force was receiving information from its radars, with which we began to plot the courses of enemy aircraft and ships, from the time they appeared on the screen until they disappeared. Thanks to the information we extracted from the personal effects of Lieutenant Nicholas Taylor, who was shot down on 4 May at Darwin, we learned that in certain weapon configurations, the Harrier's range on a sky jump take-off was no more than eighty minutes, and if the take-off was vertical, that range was reduced by fifty per cent. Considering the time at which they appeared on the screen and the time at which they disappeared, it was not difficult to fix the departure and arrival points of the various trajectories by interpolating them to the maximum of their ranges and thus be able to determine the position of the enemy carrier with an error circle of no more than 10 miles.

This was the way to make up for the lack of reconnaissance planes capable of operating to the east of the islands and maintaining contact with the British Task Force.

Neither the Grumman S-2E Tracker nor the recently incorporated Embraer EMB-111 Bandeirante Patrulha (two planes hastily leased from Brazil), both from the Naval Antisubmarine Squadron, were able to fill the role previously performed by the Neptunes. Neither in terms of endurance nor radar range.

The two Neptunes (2-P-111 and 2-P-112) had been badly worn out after the intensive missions of 1-4 May. So much so that, from 5 to 12 May, only four anti-submarine flights were completed. To attempt major repairs, 2-P-111 flew to Espora on 13 May, with the other aircraft doing the same two days later. 2-P-112 (which was the aircraft in the best condition), returned to Río Grande only on 26 May, but the operational missions it flew from then on were very few and limited by faulty electronic gear. They could no longer be counted on. Their condition was so poor that on 30 August 1982, the Neptune's history in the naval aviation came to an end.

The data processed by the COC was then sent to the mainland for a second, new analysis. This was the best that could be done to try to establish the location of the British fleet and especially its aircraft carriers (the most important target), with the ultimate aim of being able to attack them with Exocet missiles. However, this method departed from the incipient doctrine generated by the squadron, which mandated that shortly before arrival at the target a reconnaissance aircraft, which maintained contact, should update the target's position.

As the Commander of Naval Aviation, Rear Admiral García Boll, explained:

We saw, as the days went by, that the Malvinas radar permanently gave the approximate position of the aircraft carrier based on the arrivals and departures of the planes, the Harriers. Relying on



Air Force personnel hoisting the Argentine flag in front of the Westinghouse AN/TPS-43E radar on 3 April 1982. The radar had just arrived on the islands. ([www.radarmalvinas.com.ar](http://www.radarmalvinas.com.ar))

that, Malvinas was estimating the position of the aircraft carrier: 100 nautical miles at 90°, 105 at 95°; it was giving it constantly. On one hand, we began to have confidence in the information provided by the Malvinas radar and, on the other hand, we saw that the British were keeping the carrier in a very small area. So, we decided to launch the attack on that area.

Besides, there was another problem. Because two things were important: that the Malvinas plotting was correct and that the British stayed more or less in the same small area for a long time. With the information from Malvinas, we launched the attack. But once the attack was launched, nobody could talk to the Super Étendard so as not to reveal them. So, Malvinas could no longer guide them. But if it stayed in a small area, the Super Étendard would pick it up on its own radar.

But García Boll, on the basis of complaints from Río Grande, provided orders on 12 May stipulating the circumstances where Super Étendard could be used despite the lack of maritime reconnaissance support. He stated categorically that:

Super Étendards would not attack targets within 20 nautical miles of the coast

Super Étendards would attack only targets whose position was known

The Super Étendards would not make their actions dependent on coordination with Air Force attack aircraft

Naval Aviation in the capital of the Falkland/Malvinas Islands would conduct the final part of the attack as they reported and requested

It was a way to limit the chaos and to make the best use of a weapons system that was not well understood.

What was perhaps the greatest of the short circuits between Espora (García Boll) and Río Grande (Colombo) had occurred days earlier. The COAN was in the initial stages of planning a mission to attack the Cunard liner RMS *Queen Elizabeth 2*, which it was known would leave Portsmouth on 12 May, call at Ascension Island around the 20th and, between the 22nd and 24th, set sail again, on the understanding that it would make a direct route for the Falkland/Malvinas Islands.

It must be said that the *Comando de la Flota de Mar* (Sea Fleet Command) was also making its own plans to attack the ship, using the two Type 42 destroyers (ARA *Hércules* and ARA *Santísima Trinidad*) and/or the ARA *Py* (a Gearing-class destroyer, formerly the USS *Perkins* in the US Navy). The idea at Espora was to intercept the liner off Bahía Blanca, some 900 nautical miles (1,600km) off the coast. The mission involved at least four refuelling runs by Argentine Air Force KC-130 Hercules and, given the distance, the Super Étendard was to carry out the final search for the target without any other support.

It was unknown what *Queen Elizabeth 2*'s escort would be, although it was understood that this and other data would be obtained when first contact was made with the ship, for which an air barrier 250 miles long was planned, to be maintained by surveillance planes (possibly Boeing 707s, also from the Air Force).

When news of the planning reached Río Grande, the crisis exploded. Captain Colombo refused to even think that two of his planes and missiles would be flown on a mission that defied everything they had planned and, moreover, was technically impossible. The maximum flight range of a Super Étendard aircraft is just over six hours, the limitation imposed by the amount of available engine oil, which clearly cannot be replenished in flight. The planned mission would last longer than that. The refusal was



May 1982 at Río Grande. 3-A-205 is armed with an Exocet missile. (Argentine Navy)





*Teniente de Fragata Juan José "Tierno" Rodríguez Mariani in Super Étendard 3-A-203, preparing for take-off (note the generator still connected) on 23 May 1982. (Segunda Escuadrilla Aeronaval de Caza y Ataque historical book)*



*Another photograph of Teniente de Fragata Rodríguez Mariani and 3-A-203 at Hermes Quijada Naval Air Base, prior to the 23 May flight. (Segunda Escuadrilla Aeronaval de Caza y Ataque historical book)*

not well received by García Boll and Captain Colombo narrowly avoided a court martial.

In the end, neither the Naval Aviation nor the Sea Fleet went ahead with their idea of intercepting and attacking the *Queen Elizabeth 2*. However, the Air Force continued to carry out its distant exploration missions with its Boeing 707 aircraft in an attempt to detect the liner. As part of the plan, Canberra bombers were

deployed from Trelew to Mar del Plata Military Air Base. Nothing was achieved in the end.

After the war, it transpired that the liner did not set course for the Falklands/Malvinas after sailing from Ascension, but went directly to South Georgia/Georgias del Sur, so it was much further east than it was expected to be.

Returning to that day, May 23, with this information from the Falklands/Malvinas radar, the Naval Aviation Command ordered

the Second Squadron to plan a new mission, readying then Super Étendard 3-A-202, to be flown by *Capitán de Corbeta* Roberto “Toto” Agotegaray (section leader) and 3-A-203 by *Teniente de Fragata* Juan José “Tierno” Rodríguez Mariani (wingman). Both pilots had been in constant readiness since the 4 May sortie that ended with the strike on HMS *Sheffield*. They had been waiting 19 days for this opportunity, with the uncomfortable anti-exposure suit (“la goma” or “the rubber”) on. The rest of their comrades, however, had been flying: from 11 to 22 May the unit organised a series of training flights in the Río Grande area.

The British landings at San Carlos had already taken place on 21 May and bomb alley was a reality. The Second Squadron had seen their A-4Q comrades and the cousins of “*Las Avutardas Salvajes*”, who flew the Argentine Air Force’s IAI Daggers, depart from their shared air base. They had caused enormous damage to Royal Navy ships with their bombs and guns, but the price in airplanes and lives had been high. Very high. For both sides.

“We are paying frigates for aircraft” noted Admiral Woodward in his diary at the end of that 23 May. He was right in his thinking.

Now it was the Second Squadron’s chance to strike at the heart of the fleet in the open sea, seeking, as always, to knock out an enemy carrier. This time it would attack with a diversion to the south, so as not to repeat the flight pattern carried out on the previous mission.

Take-off was made from Río Grande at 1500, after a 30-minute delay due to problems with the oxygen supply in Captain Agotegaray’s 3-A-202. It was a clear and sunny day, excellent for flying, even though the possibility of strong winds at high altitude limiting the range of the aircraft was taken into consideration. The Air Force Lockheed KC-130H Hercules registration TC-69, under the command of *Vicecomodoro* Luis Litrenta, with the call sign PARIS was on station to support the mission, as required and, at 1545 the rendezvous and refuelling with the KC-130 took place, at latitude 55°00’ S longitude 59°00’ W.

Both aircraft coupled up to the refuelling baskets without problems, but Lieutenant Rodríguez Mariani’s aircraft had a fire control radar signal on its RWR, which caused the pilot (still attached to the tanker) to turn sharply to either side, trying to look for the supposedly launched missile. On a cloudless day, the missile should have been easily spotted. In the manoeuvre, the Super Étendard came dangerously close to the Hercules. However, shortly afterwards, it continued the task without further problems. It turned out to be a false alarm.

After the refuelling (which did not take long, as 1,800 litres could be transferred in no more than 10 minutes), at 180 miles from the estimated target position the Super Étendards detached from the hoses and began to descend to execute the attack leg.

As planned, 130 nautical miles from the target, they were already flying at ultra-low level. At 55 miles both aircraft climbed to 2,500 feet and transmitted with their radars, in an attempt to find the target. Nothing was seen, and the climb was repeated at 38 and 23

miles, with the same result. At 21 miles from where the target should have been and with no contacts on their radar, they began their return. Contrary to their doctrine, they had pushed their luck a little and were now, in theory, inside the Sea Dart missile’s firing envelope.

On the way back, flying south of the islands and close to Beauchene Island (already in darkness), the RWR system of both aircraft detected a radar, so they steered to 180° to avoid it and reduced altitude, which caused the signals to cease shortly afterwards.

As Captain Roberto “Toto” Agotegaray recounts:

We had an RWR signal on the bow, on both aircraft simultaneously.

We then turned violently to the south and continued that course to the bingo [fuel] limit.

There were no British ships in the position (after the attack on the *Sheffield*, they remained well to the east), nor was there any radar on the Beauchene, so it is possible that what the Thomson-CSF BF gear detected were the radar emissions of the KC-130H with the call sign ROMA, which had been deployed to support the flight of the naval aircraft in case they had fuel problems. This support had not been coordinated in the pre-flight, so the naval aviators did not know that an Argentine aircraft would be in the area. The radar warning system, it should be noted, did not allow for signal analysis, but merely tell apart a search radar from a fire control radar.

According to *Vicecomodoro* Rubén Cabanillas, who was the commander of that Hercules and had already deployed the two baskets for refuelling:

We received a new order from command ... heading for another position 100 miles south of Darwin, over the sea, to assist two returning Super Étendards. It was always quite difficult to liaise with the navy men. In this case, despite our constant calls, we got no response. They maintained total silence because of the possibility that they might be detected when using the radio. On this occasion they mumbled their callsign, making us understand that because of an alarm light on their equipment, they were being detected by the enemy. They passed swiftly below us without refuelling, heading 270°, and were lost over the horizon towards Río Grande.

The two aircraft, after the radar emissions scare, altered course towards Río Grande, gaining altitude and then reducing power to maximise fuel economy. They landed safely at 1745.

Unfortunately, as soon as they landed, they learned of the death of *Capitán de Corbeta* Carlos María Zubizarreta, who was killed after an unsuccessful ejection as his Douglas A-4Q Skyhawk (3-A-306) departed the runway on landing at Río Grande. The war continued.

Although the initial information for the attack was very good, as the aircraft carrier HMS *Invincible* was, at 0900 on 23 May, some eight nautical miles north-east of the reported position (and HMS

*Hermes*, only 12 miles further away), it became outdated as the hours went by. The carriers (and the entire battle group) were heading north, so that by 1700 both carriers were some 80 nautical miles from the position over which the raid was carried out. With attack, instead of search, radars such as the Super Étendard had,

Table 5: 23 May mission				
Pilot/Aircraft Commander	Aircraft	Registration	Weapon Load	Comments
<i>Capitán de Corbeta</i> Agotegaray	Super Étendard	3-A-202	1x AM-39 Exocet	Section leader
<i>Teniente de Fragata</i> Rodríguez Mariani	Super Étendard	3-A-203	1x AM-39 Exocet	
<i>Vicecomodoro</i> Litrenta	KC-130H	TC-69		Tanker



it would be impossible to find the targets; hence, the doctrinal importance of updating the position of the targets, something that could not be done due to the lack of an MPA.

The planes could not remain searching, as *Capitán de Corbeta* Roberto Curilovic explains:

You did the mission and if the target didn't appear, you didn't keep searching, circling or exposing the aircraft or climbing up to try to see. The profile was fulfilled as planned. It was too expensive to lose a plane for lack of fuel or to keep going without being fully aware of what was there. So they came back. They regretted not being able to launch.

The attack went unnoticed by the fleet. Even so, the carrier group had its usual Exocet scare that day. At 1410, the Type 42 destroyer HMS *Exeter*, with its Type 1022 radar, detected a long-range, high-speed contact, so a red alert was radioed. However, shortly afterwards, after the contact disappeared from radar and on further assessment, it was considered that it might be a returning Sea Harrier, thus easing the level of tension in the fleet. It should be borne in mind that no aircraft had been detected taking off from Río Grande, and no other circumstances suggested that a Super Étendard attack was in the offing.

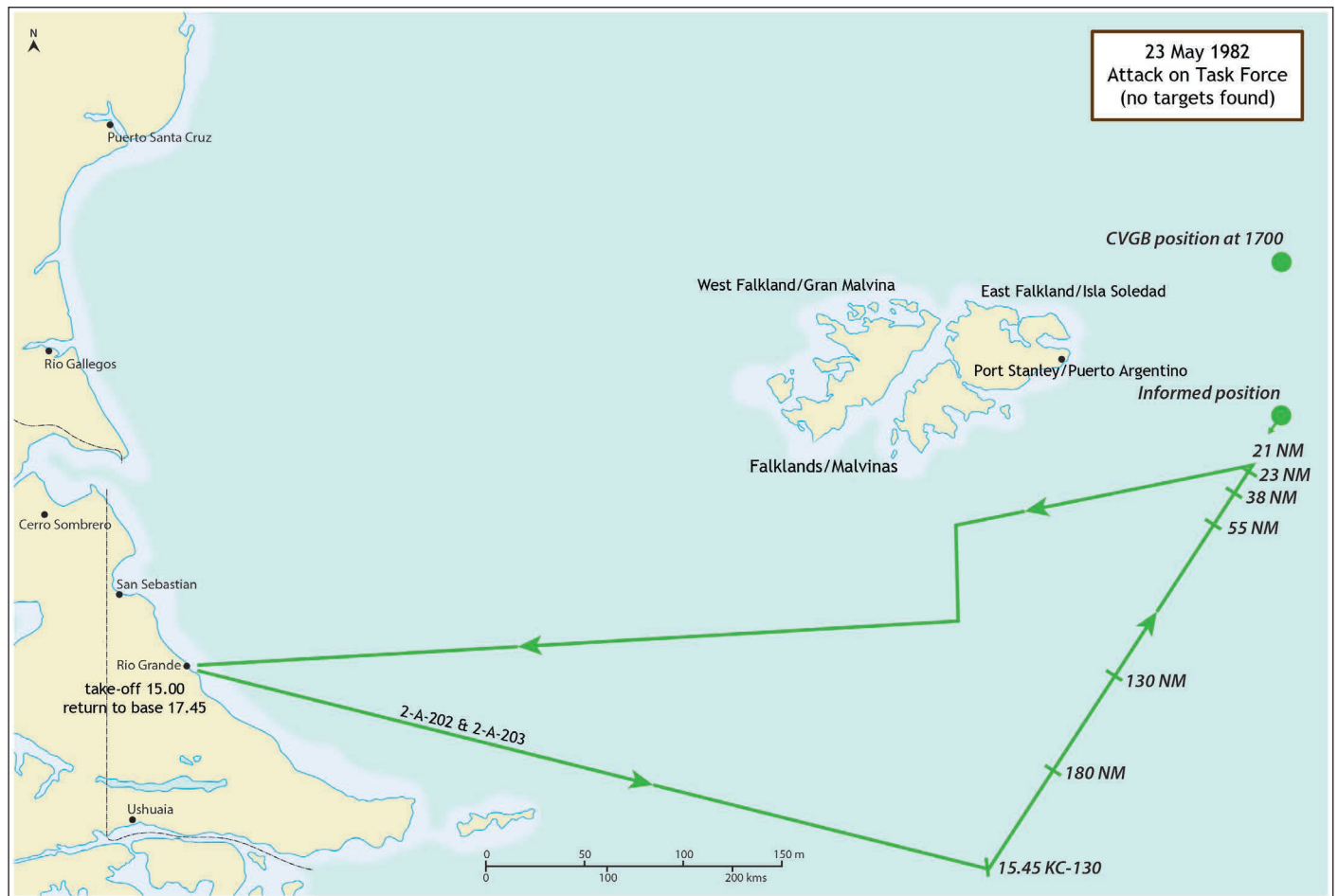
At that time, the British early warning system was in full swing. The submarine HMS *Splendid* (Commander Roger Lane-Nott) had been stationed off Río Grande on 21 May, and other British and Chilean assets (among the latter, especially the nearby radar located at Punta Arenas, just across the Strait of Magellan in Chile) were providing useful information to the fleet, giving at least 40 minutes' warning.

However, minutes later, a possible Agave radar emission from the Super Étendard was detected. "Handbrake! Handbrake!" began to be piped, quite tensely over the fleet's communication circuits. Each ship already knew what to do with this code word. Quickly, the ships began the chaff launch, proceeded to alter course to put the threat astern and HMS *Invincible* ordered the take-off of a Lynx HAS.2, which was equipped with a jammer, ready to meet the missile threat.

Lynx HAS.2 XZ725 (belonging to 815 Naval Air Squadron) had arrived at HMS *Invincible* on 17 May, and two similar helicopters (ready for identical tasks), XZ720 and XZ240, were on *Hermes*. These helicopters had two means of deceiving the missiles. The first was a cube reflector radar, which made the helicopter, in theory, look as big as an aircraft carrier to the enemy radar. The second was an I band radar jammer, which would serve to confuse the missile's homing head. It must be said that the radar cube reflector was only a temporary solution until the jammer was deployed. The jammer, in turn, had arrived on the carriers on the 22nd and had been installed the same night. It had been flight-tested for the first time on the morning of the 23rd, working, in theory, without any problems. The system was known as "Hampton Mayfair".

The jamming gear was supplied by Raytheon Company (USA) in the 1960s, originally designated JS-603 by the manufacturer, and known as ARI 23165 in service in the UK. It was used at the time by the English Electric Canberra T Mk.17s of 360 Squadron. The equipment was primitive and bulky, and was carried in what had been the bomb bay of the old bombers. The system was integrated with a Tektronix 492P spectrum analyser installed in front of the Observer's position, as well as associated mounts and antennas.

According to Lieutenant Commander Dick O'Neill, detachment commander, who was stationed on the HMS *Hermes*:



From 26 May until I left, we remained at Alert 5 throughout daylight hours with the jammer in case of Exocet launching whenever Air Raid Warning Red was called. The main problem with the jammers was that, because they were very old and valve driven, they needed about ten minutes to come on line once rotors were engaged. Thus, we were invariably very late in the attack before the jammer came on line. Added to this the fact that at Air Raid Warning Red all I band radars went unrestricted, hence it made it much more difficult to identify the Exocet radar in the very short interval (if any) we had between the jammer coming on line and the missile finding its target.

Another problem with the system was that it depended on helicopter positioning. To be effective, the helicopter needed to be on the starboard beam, 600 yards from the aircraft carrier and flying at 500 feet.

As far as operation was concerned, Hampton Mayfair made use of the knowledge that the AM-39's ADAC seeker, once it detected a jammer, switched from radar lock to Home-on-Jam. That is, it moved towards the jammer. Thus, if the jamming came from a helicopter, it would head towards the helicopter and away from the ships. In theory, while the Exocet could not exceed 100 feet, a helicopter flying at 500 feet could seduce the missile, but it would finally pass harmlessly underneath. Nevertheless, it did not influence this mission or subsequent missions, as the helicopter was always found on deck (and with no time to take off) when the attacks materialised.

At 1420 (10 minutes after the unclear detection of the *Exeter*), the alert status was downgraded to yellow. At that time, the Super Étendards had not even taken off from Río Grande.

11

## 24 – 26 MAY: THE SINKING OF SS ATLANTIC CONVEYOR

After four days of air attacks on the landing force ships at San Carlos Water/Bahía San Carlos, the Argentine Air Force began to feel the effects of downed aircraft and the loss of experienced pilots. Ship and land-based anti-aircraft defence was taking its toll,

but the main threat remained the Sea Harriers with their deadly AIM-9L Sidewinder missiles operating from the carriers.



SS *Atlantic Conveyor* leaving Portsmouth, after having completed the modifications to enable it to embark aircraft and helicopters. (Royal Navy)





SS *Atlantic Conveyor*, operating with a Sea Harrier on its forward flight deck. (Royal Navy)

Patiently, the Super Étendard awaited its chance to strike at the heart of the fleet. The three Exocet missiles remaining after the attack on HMS *Sheffield* could not be wasted. They had to find their target.

After the unsuccessful strike mission on 23 May, the squadron spent the next day awaiting information and orders for a new mission. The next pair of pilots designated were *Capitán de Corbeta* Roberto “Toro” Curilovic and Lieutenant Julio “Mate” Barraza. For a couple of days, the Grumman S-2E Tracker and EMB-111 aircraft of the Naval Antisubmarine Squadron (operating from the Río Gallegos base) had been recording the Task Force activity, mainly through their electronic surveillance equipment, since the range of their radars (AN/APS-88 for the Tracker and AN/APS-128 for the Brazilian made aircraft) was certainly limited. Along with the information sent daily from the Falklands/Malvinas Islands through their radar, the position of an aircraft carrier to the northwest of the Islands was established.

A few weeks earlier, on 14 April 1982, the British Ministry of Defence had placed a requisition order for the container ship *Atlantic Conveyor*, which then sailed from Liverpool to Devonport, to carry out the necessary modifications for the campaign ahead, completing the works on 23 April. The *Atlantic Conveyor*, built at the Swan Hunter shipyard on the Tyne, and completed in March 1970, was a 19,950-tonne container ship owned by Cunard Line, which combined roll on/roll off and container storage facilities in the same vessel. The main adaptation now required for its South Atlantic duties was to prepare it for transporting aircraft on the main deck and stores in the lower holds. A special platform was built forward to allow operation of Harrier/Sea Harrier aircraft, and the aft deck was modified and adapted for helicopter operations.

With a crew of 32 merchant sailors, supplemented by Naval Party 1840, with about 130 military and Royal Fleet Auxiliary personnel, the *Atlantic Conveyor* sailed from its dock at Devonport on Saturday afternoon, 24 April, to anchor in Plymouth Sound and embark five Chinook helicopters from 18 Squadron RAF and six Wessex helicopters from 848 Squadron Royal Navy, departing the following day.

The helicopters’ rotor blades were removed, and the airframes were protected with Dri-Clad covers to inhibit corrosion. To avoid the effects of salt air during the voyage, eight Sea Harriers from 809 Squadron and six Harriers from 1 Squadron, RAF, would fly to Ascension Island and embark there from 5 May, to receive the same treatment as the helicopters until their transfer to the carriers.

Upon departure, the ship loaded a large quantity of ammunition: 240 600-pound cluster bombs, AS.12, SS.11 and Sidewinder missiles, 7.62mm ammunition, and conventional and phosphorus grenades. Helicopter and plane spares, vehicles, 11 Squadron Royal Engineers

stores, tents for the entire force in the Falklands/Malvinas (“Tent City”), the elements to set up a forward base to operate aircraft, fuel pumping equipment, a water desalination plant, generators and a long list of other stores, including a whole prisoners’ camp, were also embarked.

The *Atlantic Conveyor* was under the command of Captain Ian Harry North, 57, a Second World War veteran from the Cunard Company, accompanied by Captain Mike Layard, Royal Navy, in charge of the naval party.

Argentine intelligence knew about the deployment of the *Atlantic Conveyor* through UK press reports, which gave an account of the preparations for the enlistment and the role that the container ship would play in the Task Force. For several days in the first half of May, the Argentine Air Force deployed English Electric Canberra bombers at BAM Mar del Plata waiting for the Boeing 707 surveillance planes to report their sighting and position.

On 7 May the *Atlantic Conveyor* sailed from Ascension Island along with the amphibious group, arriving in the area near the Total Exclusion Zone on 19 May, when it transferred four Sea Harriers and four Harriers to *Hermes*, and the following day four Sea Harriers to *Invincible* and two Harriers to *Hermes*.

Having freed up room on the deck of the *Atlantic Conveyor*, support personnel began work to fit out the helicopters to transfer one Wessex helicopter from 845 Squadron to RFA *Stromness* and prepare the remainder for landing at San Carlos once it arrived there and a shore base was established for its operation. One of 848 Squadron’s Chinook helicopters and some Wessexes were used to transfer stores to other ships.

Early on the morning of 25 May, Admiral Woodward ordered the *Atlantic Conveyor* to mobilise and join the Carrier Battle Group for its approach to San Carlos Bay that evening. The rendezvous took place about 75 miles east of the Falkland/Malvinas Islands in the afternoon. The carriers would approach the islands to allow the Sea Harriers to quickly position themselves over the landing area and remain longer on Combat Air Patrol.

Woodward recalls:

The only area which I did find rather worrying was the position of the *Atlantic Conveyor*, stationed by me at the far north end of the line of the auxiliaries, on the “disengaged” side from Río Grande, home of the Étendards.

In the most brutal terms, I could afford to lose a big merchant ship, or even a tanker, a whole lot more than I could afford to lose a carrier – not that I thought very highly of either option. It was simply a matter of the lesser of two evils.



Super Étendard 3-A-204, with the AM-39 freshly fitted (note the missile canister still nearby).  
Ground crew is working on the aircraft and its systems. (Instituto Aeronaval)

In the mess room of *Atlantic Conveyor*, its captain, the veteran and bearded Captain North, remarked to the officers eating breakfast with him: "Well, lads, it's 25 May. Something spectacular should happen today".

Meanwhile, at the Río Grande base, the 25th dawned with bitter cold and strong north-westerly winds, coupled with intermittent drizzle. The situation at the base was one of permanent alert, and suspicions that something fishy was going on were confirmed when, a few days earlier, a British Westland Sea King HC.4 helicopter (ZA290) landed and was burned by its crew in Chilean territory, near Punta Arenas. The Super Étendard posed the greatest threat to the Royal Navy, so it was presumed that the British might carry out some kind of Special Forces operation to put the squadron's aircraft out of action.

On the morning of 25 May, the British *Daily Express* newspaper asked: "Have the SAS hit Exocet fighters?" The chronicler stated that "The absence of Super Étendards from three days of fighting in the waters of San Carlos Water, and the mysterious appearance of the abandoned British helicopter in Chile have fed the theories of Westminster's bathtub admirals". Nevertheless, he also pointed out that "Another theory is that the Argentines are holding back the Étendards and Exocets for a big attack on the carriers *Invincible* and *Hermes*". The day's events would prove which of the two theories would be valid.

The first tasks of the day were for the maintenance staff to bring the Super Étendard aircraft scattered around the base to the hangar so as not to provide a direct target in the event of a ground attack, while the weapons staff carried the two Exocet missiles from the ammunition dumps. They were to be removed from the pressurised containers and hung on the two aircraft that were ready for flight.

Super Étendard 3-A-203 and 3-A-204 were prepared and armed. While in the pilots' room the air was getting thicker and thicker with cigarette smoke, the pilots were chatting quietly about various issues, until the telephone rang with a call from the Combat Operations

Centre, from where the order to attack an important target (an aircraft carrier) about 110 miles northeast of Port Stanley/Puerto Argentino in position 50° 38' south – 56° 08' west was reported.

From that moment on, mission planning began, and was decided that the approach to the target would be from the north/northwest to have the surprise factor. The mission would have some restrictions, as the presence of two enemy ships at the northern entrance to the Falkland Sound/Estrecho de San Carlos had been established, and the activity of numerous air patrols by Sea Harrier aircraft in the area.

An attack from that position would also allow the Task Force picket ships to be overrun: there were not that many now available in the fleet, both because of the loss of ships in the previous days and because of the need to commit certain ships to protect the waters around the Falklands/Malvinas and the amphibious effort. In fact, the British had only one radar picket ship at the time, the Type 42 destroyer HMS *Exeter*, which was located 25 miles from the main body, but in an east-southeast direction.

Therefore, a trajectory was planned to avoid early detection and interception of the aircraft, so as to arrive over the Task Force from an unexpected direction. The mission included a refuelling with an Air Force KC-130H Hercules. The Hercules tanker was requested to be located 160 miles east of Puerto Deseado. The planned route for the attack was 500 miles, a long four-hour flight, with take-off scheduled for 1100. After the pre-flight briefing, Curilovic and Barraza went to the aircraft, conducted the pre-flight inspection and sat down in their cockpits. They started their aircraft and waited on the apron in front of the hangar.

The wait was long, and after about 20 minutes, the mechanics signalled the pilots to cut their engines, and after climbing off from their aircraft, they went with the whole team to the hangar room. There, Captain Colombo told them that the KC-130, which was supposed to be already off Puerto Deseado at 6,000 metres, was not available. The pilots took the opportunity to have lunch, as it was



practically midday, without taking off their “rubber” (anti-exposure suit), which was only good for surviving half an hour longer in the freezing waters of the South Atlantic. Barraza recalls:

Toro and I went to the Officers’ Mess. The menu of the day was a potent lentil stew and in the morning, we had had the classic and abundant 25 de Mayo chocolate for the National Day celebrations. What a light meal to fly for four hours in the ‘Goma’!

Meanwhile, Curilovic and Barraza took the opportunity to go over the flight plan carefully, especially how to carry it out in total silence.

In fact, the Southern Air Force (SAF) Command was preparing other attacks over San Carlos Water/Bahía San Carlos, so, the Super Étendard would have to wait a few hours until the KC-130s were available.

The day had begun with the take-off at 0800 hours from BAM Río Gallegos of a flight (call sign MARTE) of four Douglas A-4B Skyhawks of Fighter Group 5, led by Captain Hugo Palaver, to conduct an attack over San Carlos. Two aircraft returned after about half an hour’s flight, while the other section refuelled and continued their flight into the southern part of Falkland Sound/Estrecho de San Carlos. They then turned right into what they thought was San Carlos Settlement/Establecimiento San Carlos, where they sighted a green, black-hulled ship, thinking it was the MV *Norland*, when in fact they were in the Darwin Harbour area without recognising it and the ship was the *Monsunen*, then operated by the Argentinians. The A-4s began their attack, receiving anti-aircraft fire, which hit the underside of the leader’s aircraft. The formation egressed to the north, but HMS *Coventry*’s Sea Dart claimed Palaver’s damaged Skyhawk.

At 1103 hours, TORO flight took off from BAM San Julián with four A-4C Skyhawks (from Fighter Group 4), which after refuelling with the KC-130 flew low over West Falkland/Isla Gran Malvina until reaching San Carlos Water/Bahía San Carlos (at 1225 hours), attacking the ships assembled there. As a result of the impact of a Rapier missile (and/or small arms fire), one of the Skyhawks (C-319) was shot down on the spot and its pilot, Lieutenant Ricardo Lucero, ejected, was then rescued, taken prisoner and carried aboard HMS *Fearless*. Another aircraft (C-304) was shot down by a Sea

Dart missile from HMS *Coventry* during the escape after the attack, killing its pilot, Captain Jorge García. The attack had no apparent effect on the British ships anchored there. The surviving Skyhawks arrived at their base at 1430.

After a delay in the attack schedule (as the refueller was busy providing support to these Air Force Skyhawks), the two Super Étendards resumed the start-up and readiness manoeuvre. This time the mechanics gesticulated to the pilots to start taxiing as a crowd jammed the apron. All the personnel of the Second Squadron and the pilots and personnel of the Argentine Air Force who shared the base greeted them effusively with a thumbs up to wish them success in the mission.

They finally took off from Río Grande at around 1430, heading for the location where they were to meet with the KC-130H for an in-flight refuelling. They overflew the submarine HMS *Splendid* (located five miles outside the Argentinian claimed 12-mile limit near Río Grande), without it being able to detect them, just as their take-off also seemed to go unnoticed (or their northerly course puzzled them) by the other elements watching the air bases on the mainland.

At about the same time, two A-4Bs (call sign VULCANO) of Fighter Group 5, piloted by Captain Marcos Carballo (C-225) and Lieutenant Carlos Rinke (C-214), took off from the Río Gallegos air base. The third aircraft of the flight failed to take off. A few minutes later, they were followed from the same air base by another flight of three Skyhawk A-4Bs (ZEUS), piloted by Lieutenant Mariano Velasco (C-212), Ensign Jorge Barrionuevo (C-207), and Lieutenant Carlos Ossés (C-204). The latter returned after 240 nautical miles when his VHF radio went out of service.

Their target, the ships north of Pebble Island/Isla Borbón: the Type 42 destroyer HMS *Coventry* and the Type 22 frigate HMS *Broadsword*. The “42/22 trap” devised by Admiral Woodward to intercept attacking aircraft on their approach to the islands.

At 1520, after in-flight refuelling with the KC-130H, the VULCANO section attacked the frigate HMS *Broadsword*. The British ships responded to the attack with missiles, machine guns and cannon fire, while the Argentine aircraft fired their 20mm guns and dropped their bombs. One bomb bounced off the water, hitting the frigate’s stern at an upward angle and exited the flight



Type 42 destroyer HMS *Coventry* launching a Sea Dart missile at Argentine aircraft on 25 May 1982, in a photograph taken from the Type 22 frigate HMS *Broadsword*. *Coventry* would be sunk by the end of the day. (Royal Navy)

Table 6: 25 May mission				
Pilot/Aircraft Commander	Aircraft	Registration	Weapon Load	Comments
<i>Capitán de Corbeta</i> Curilovic	Super Étendard	3-A-203	1x AM-39 Exocet	Section leader
<i>Teniente de Navío</i> Barraza	Super Étendard	3-A-204	1x AM-39 Exocet	
<i>Viccomodoro</i> Pessana	KC-130H	TC-69		Tanker

The KC-130 went on the air giving the following message: 'I have something important for you, write down', and then transmitted coordinates in clear which I for my part wrote down, but I was in doubt whether I had copied correctly. These coordinates were entered in the navigation system, and I checked that there was not much difference

deck unexploded, shattering the nose of the Lynx HAS.2 (XZ729) helicopter on board.

The ZEUS section immediately arrived and headed straight for HMS *Coventry*. *Coventry*, sailing parallel to the frigate, turned and faced the direction of the attack, launching a Sea Dart missile and anti-aircraft fire. As *Broadsword* initiated its own sequence of fire, *Coventry* crossed the line of sight between *Broadsword* and the inbound Skyhawks causing the Sea Wolf missile system to lose its intended prey.

First Lieutenant Velasco and Ensign Barrionuevo approached *Coventry* and dropped their bombs. The bombs dropped by Velasco penetrated deep into the hull and exploded, causing extensive damage, with the ship heeling dangerously until its keel was fully exposed only 15 minutes after the attack. All available helicopters assisted in the operation to rescue the survivors, taking them to HMS *Broadsword*, RFA *Fort Austin*, and directly to the hospital ship *Uganda* for those seriously injured.

The commanding officer of HMS *Coventry*, Captain David Hart Dyke, recalled the scene:

Indeed, the absolute priority for the remainder of this traumatic day was to save lives, for there was nothing we could do now for *Coventry*, with so much of her side opened up to the sea. Many men were rescued, and often in the most difficult of situations. Ladders to the upper deck – mostly twisted, some swinging freely, and all now at impossible angles as the ship leaned over – were only one of the hazards facing those trying to get the injured and concussed up and out of danger. But the ladders were nothing compared to the smoke, the heat and the fire. It was going to take acts of astonishing courage for some to be saved. And miracles too.

The tragic sinking of HMS *Coventry* and the lucky escape of HMS *Broadsword* marked the end of the 42/22 combination as a radar picket and missile trap due to its vulnerability. At the same time, it diverted the attention of the Task Force.

Meanwhile, at 1545, the Super Étendards had already carried out the refuelling manoeuvre with the KC-130 (call sign BERLIN). The meeting with the tanker aircraft took place without any communication and was waiting for them with hoses extended and circling at the agreed altitude.

Barraza signalled to his leader and, one on each side, they slowly approached the tanker, until the coupling was made. They remained connected for about six or seven minutes and received the previously stipulated amount of fuel. From the rear windows of the Hercules, one by one, the crew members leaned out to greet the pilots and wish them luck in their mission. They even took pictures.

Before separating, the Hercules passed information to the naval aircraft, as Lieutenant Barraza recalls:

in course and distance from what we had originally.

The squadron did not want the same thing to happen as on the 23rd and, therefore, it was considered important for the pilots to have the most up-to-date information about the position of the target to be attacked.

After the rendezvous with the tanker, they began a gentle descent and from there began their final phase of attack from the direction totally unexpected by the Task Force. During the flight, no electronic emission was detected in the aircraft's equipment, which allowed Curilovic and Barraza to assume that they would have the surprise factor in their favour.

From the moment the pilots estimated that they were 130 miles from the Task Force they were heading towards, they flew low, at about 50 feet, and at 500 knots. They were about 500 metres apart, flying below a broken cloud layer at 2,000 feet. At 55 miles, with a double press of the radio button both aircraft synchronised a climb to about 1,800 feet altitude (below the cloud cover, not wishing to climb into it and lose visual with each other and the sea) and made a radar transmission to confirm the existence and location of the targets. As the doctrine dictated, Captain Curilovic had his radar at 80 nautical miles (longer range scale) and Lieutenant Barraza at 40. But they did not detect any targets, so they left the radar on standby and returned to low altitude.

Very shortly afterwards they climbed again. They were now about 39 miles from the target. To their delight, after two radar sweeps, there they were. Curilovic still had his radar on 80-mile scale and believed that he had two medium-sized targets. In turn, Barraza, who had better definition on his screen (being on 40-mile scale) detected the same targets, but judged the target further to his right to be a decidedly large one. Both, too, detected a small target to the left of the screen.

There they began to record some noise on their RWR which, while not including clear signals, indicated that there was electronic activity in the air. The leader, to avoid any surprises, began a gentle descent to 400 feet. Curilovic broke the silence: "on the largest", which was confirmed by Barraza over the radio. The radars were "locked on" after triggering and, from then on, they switched on "MASTER MISIL" on the aircraft's cockpit and began to follow the checklist for the AM-39 launch as they flew towards the target, now at 450 knots.

Curilovic recalls:

There were three targets on the screen and I immediately engaged the automatic tracking on the largest one. During the whole flight I only communicated twice with my wingman. The first time I confirmed the choice of target: "on the largest"; the second time to order the launch of the missiles, which we carried out when we were at approximately 20 miles from the chosen target, located



in the position 50° 38' S and 56° 08' W. We fired the two missiles. I checked Barraza's launch which was to my left, and my own by the reaction of my aircraft at the moment it released the missile.

Curilovic continues:

When we launched both missiles, we were about 200 metres apart. When I launched mine, I was mesmerised as I watched the Exocet start its path to the target.

About the same moment, Barraza recounts:

I pressed the fire button, felt a jolt and then heard a boom below. Once both missiles were fired, I made my breaking turn to move 180° away from the course of the target without noticing that Curilovic was not ahead. The British fleet knew at that moment that we were attacking them. The sun was descending, the sea looked golden and the sky was purple.

As the two Super Étendards climbed and turned on their radars for the last time to generate the final dialogue between the aircraft and the missile with the attack data, the newly arrived Type 21 frigate HMS *Ambuscade* (Commander Peter J Mosse) detected the radar echo of the raiders: they were only 28 miles away and on a bearing of 310°.

Thirty seconds earlier the frigate had detected the Agave radar emission from the Argentine aircraft. However, even though the frigate raised the alarm to the Task Force (ZIPPO 4, for an imminent missile attack) and, once again, the word "Handbrake!" saturated the radio circuits, the die would be cast for one of its ships.

The Type 21 frigate HMS *Alacrity* was on station slightly south of the *Ambuscade*, and its commander, Commander Chris Craig, recalls:

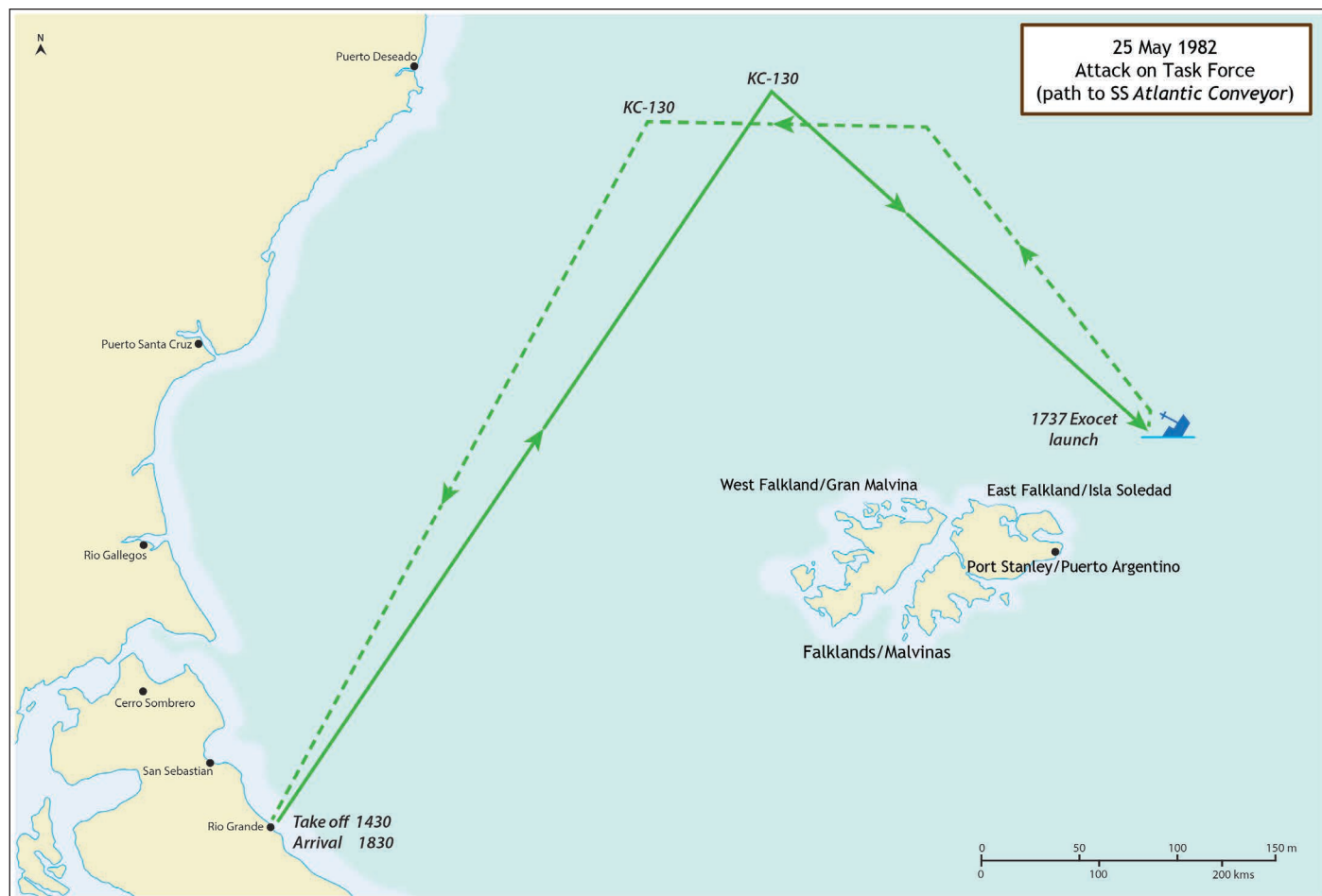


Capitán de Corbeta Roberto "Toro" Curilovic climbs down from his aircraft in Río Grande, after the 25 May mission, when the *Atlantic Conveyor* was hit. The landing took place at night. (via Roberto Curilovic)



Julio "Mate" Barraza gets out his Super Étendard, after the 25 May mission that ended with the sinking of the *Atlantic Conveyor*. As "Mate" recalls: "I am getting off the 204, which was the aircraft in which I flew on 25 May 1982. We are returning from the mission, and you can see that it is already dark. It was a very long flight, more than four hours, planned with double in-flight refuelling. I'm coming out of the cockpit and the mechanic is offering me a pin that was placed on the landing gear lever before leaving. I can't wait to get out and I'm already upright, when in fact I should have put the pin in before I stood up. Of course, the apron was full of people and cheers could be heard. All the pilots and mechanics from the Squadron, and AAF Dagger pilots surrounded us, wanting to know how it had all gone. We slowly made our way to the ready room with Curilovic and other pilots, to do the post-flight debriefing. I remember that Bedacarratz accompanied me on that short trip and asked me what we had seen on the radar. I said that there was one big echo and two small ones and that my radar had locked on the largest. He signalled me not to speak in front of everyone and to save the details for later. As we knew nothing about the outcome of our attack, I personally believed it might be one of the carriers". (*Segunda Escuadrilla Aeronaval de Caza y Ataque* historical book)

Handbrake! cracked the simultaneous reports from Exeter and *Ambuscade*. Every man in the Task Group now knew the codeword "Handbrake" was the Étendard radar – and that meant



Exocet. Somebody's name was on this one.

After the launch, Curilovic flew for a few more seconds in the wake of the missile, and observing that his wingman was already turning away, he made a violent turn to escape and re-joined the other aircraft.

As previously coordinated, they escaped at full speed, at almost 600 knots over the water, watching behind to see if any Sea Harriers were in pursuit. They continued to fly in tight formation and in a gentle climb towards the rendezvous point for the second refuelling, while there was still daylight at the height at which they were flying. In the event of not finding the KC-130 or being unable to refuel, the plan was to land at Puerto Deseado, where a Beechcraft Super King Air 200 support aircraft with ground crew was deployed.

In any case, the pilots managed to establish communication with the tanker, which had been waiting for them at the planned site, and refuelled again before returning directly to Río Grande, landing at night after more than four hours of flight. Upon arrival at the base, they were greeted by the personnel with expressions of joy,



A Sea Dart missile being launched from HMS *Invincible* in the early 1980s. HMS *Invincible* launched six of these missiles on 25 May 1982, one of which was thought at the time to have shot down one of the Exocets headed for the *Atlantic Conveyor* (which was not the case). Derek Hart, who was a Lieutenant serving as the Weapons Section Officer of HMS *Invincible* remembers: "I was a little concerned that by firing six missiles we had reduced the total number of missiles we carried by 30 percent in just two minutes! I asked the Anti-Air Warfare Officer about this, and I remember him telling me: "*HMS Sheffield* was sunk with a full Sea Dart magazine – that was NOT going to happen to *Invincible*!" I agreed with him!" (Ken Griffiths)

although they were still unaware of the details of the mission and its outcome. They would only find out the next day thanks, once again, to the BBC.

Coming back to the moment of the missile launch, the detection of the frigate HMS *Ambuscade* (at 1636) was followed almost immediately by radar contacts on the Type 22 frigate HMS *Brilliant*, the Type 42 destroyer HMS *Exeter* and the aircraft carrier HMS *Hermes*. The ships, with this alert, complied with the relevant



procedures by firing chaff (except for the merchant ships, which did not have these systems) and changing course to counter the effects of the missiles.

In turn, the Lynx HAS.2s with the Hampton Mayfair gear that were on Alert on *Invincible* and HMS *Hermes* were ordered to take off. Both did so quickly (*Invincible*'s in less than four minutes) but it was almost impossible, at the speed of events, for the helicopters to position themselves up threat and get the jammer working.

The attack came as a surprise to the Task Force, coming as it did from an unexpected direction and amidst the tension generated by the sinking of HMS *Coventry* moments earlier.

The transcript of events in CTG 317.8's war diary demonstrates the drama of these moments, and how close the missiles came to hitting one of the carriers (times according to GMT, -3 for local time):

1924z COVENTRY has capsized and is believed to have sunk.

1936z AGAVE radar fitted in the SUPER ÉTENDARD detected by AMBUSCADE and EXETER.

1937/8z Two aircraft detected by AMBUSCADE and BRILLIANT followed shortly thereafter by missile release. Full Anti-Ship-Missile-Defences (ASMD) taken.

1940z Missiles detected in flight by BRILLIANT on radar and visually by HERMES and AMBUSCADE. Initial track was towards AMBUSCADE but then missiles apparently veered left, probably towards Chaff which they passed through, and struck ATLANTIC CONVEYOR on the starboard quarter. The attack aircraft were not intercepted.

1943z INVINCIBLE engaged HERMES chaff with 6 SEADART believing them to be hostile aircraft.

1949z ATLANTIC CONVEYOR reported that she had lost propulsion and firemain and is on fire below decks.

1958z An INVINCIBLE SEA KING picked up a man overboard from ATLANTIC CONVEYOR.

2020z ATLANTIC CONVEYORs fire reported to be widespread and that she is attempting to CO2 drench.

2030z ATLANTIC CONVEYOR reported to be abandoning ship as the fire spreads towards a cluster bomb stowage.

2047z HERMES and INVINCIBLE SEAKINGS, BRILLIANT and ALACRITY started an SAR mission to pick up ATLANTIC CONVEYOR landed on HERMES.

2130z ALACRITY reported recovering survivors slowly, some in poor condition.

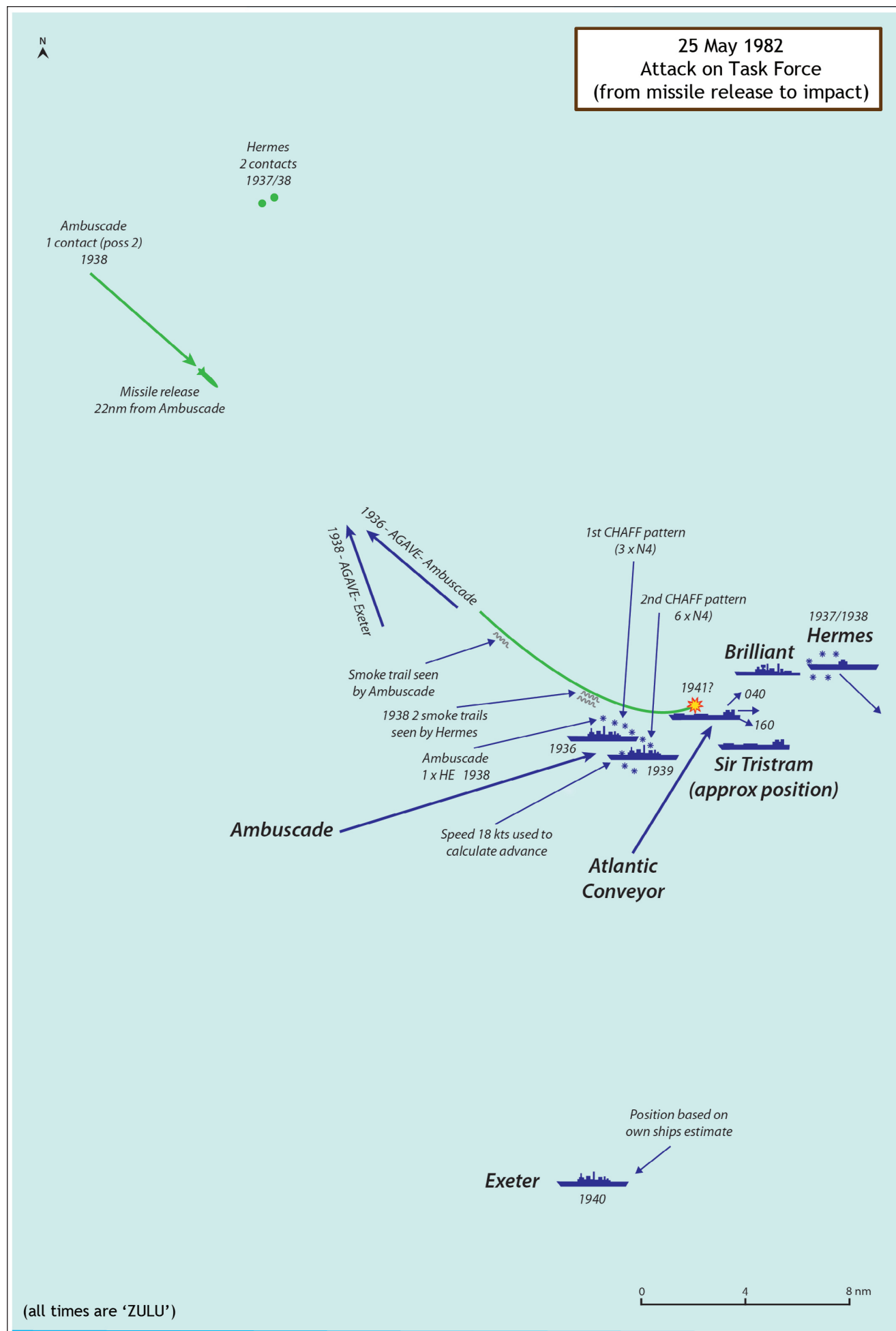
2213z ATLANTIC CONVEYORs fire reported to be widespread and that she is beyond firefighting or salvage.

Following the missiles' hits on the *Atlantic Conveyor* (both missiles were seen flying close together by the Sea Wolf missile video equipment on the frigate HMS *Brilliant*), off the port side fin and about 10 feet above the water, a rescue operation was mounted with helicopters and the frigates HMS *Alacrity* and HMS *Brilliant*, supported by the RFA *Sir Percivale*.

Survivors were picked up from the life rafts: 133 men were rescued in total, while there were 12 casualties, including Captain Ian North, who drowned before reaching a raft, despite the heroic efforts of Captain Mike Layard to save him. Not only the loss of life, but also the loss of valuable military stores, including helicopters, spare parts and bombs proved a major logistical blow to the development of the ground campaign.



RFA *Regent*. A post-war Royal Navy analysis of the 25 May attack reports that this ship was the large target on which the two Exocet missiles were launched: "The weight of evidence currently available therefore leads to the conclusion that the Exocets were targeted on *Regent* (which was loaded with ammunition), and were launched at a range of about 27nm with the large seeker acquisition window and (probable) an eight nm switch-on range selected. *Regent* was not detected during the initial seeker scans (which no UAA-1-fitted ships nearby were in a position to intercept) and *Atlantic Conveyor*, being positioned in the region of the seeker acquisition windows searched next, was subsequently acquired. This situation has been investigated using an OEG (RN) computer model of Exocet firings". *Regent* was at the time loaded with ammunition (and even a live WE.177A nuclear depth charge!), so its explosion could have had devastating effects on nearby ships and probably change the outcome of the war. (Wolfgang Fricke)





After a hectic day, from the aircraft carrier HMS *Hermes*, Admiral Woodward sent the following signal at 2050z to HQ at Northwood, addressed to Admiral John Fieldhouse (Commander of the Task Force), about the attack:

2 X SUPER ÉTENDARDS MADE LOW LEVEL ATTACK FROM 310 PRESUME FROM DESEADO – AIRCRAFT DETECTED AT 28 MILES 2 MISSILES SEEN FROM HERMES AND BRILLIANT. MISSILES STRUCK ATLANTIC CONVEYOR STBD QUARTER ALACRITY AMBUSCADE SIR PERCIVALE ASSISTED BUT ATLANTIC CONVEYOR ON FIRE AFT, LOST ALL POWER AND ABANDONING SHIP AS FIRE SPREADING TO BOMB STOWAGE 1 CHINOOK RECOVERING TO HERMES. CASUALTIES UNKNOWN.

The same signal was also sent to Brigadier Julian Thompson, commander of 3 Commando Brigade while in a meeting at his HQ in San Carlos to adjust details of the plan to begin the mobilisation of his men from the beachhead, for which he was relying on the helicopters carried by the *Atlantic Conveyor* to arrive that night in San Carlos.

The meeting was interrupted by the news of the sinking of the ship and the loss of all but one Chinook helicopter. He then ordered a meeting for the next day to review that plan. Thompson recalls the moment:

They were to be tasked with investigating what, if anything could be done to salvage the wreck of the plan using the existing helicopter and landing craft assets. As the R Group dispersed, somebody said, “We’ll have to bloody well walk”.

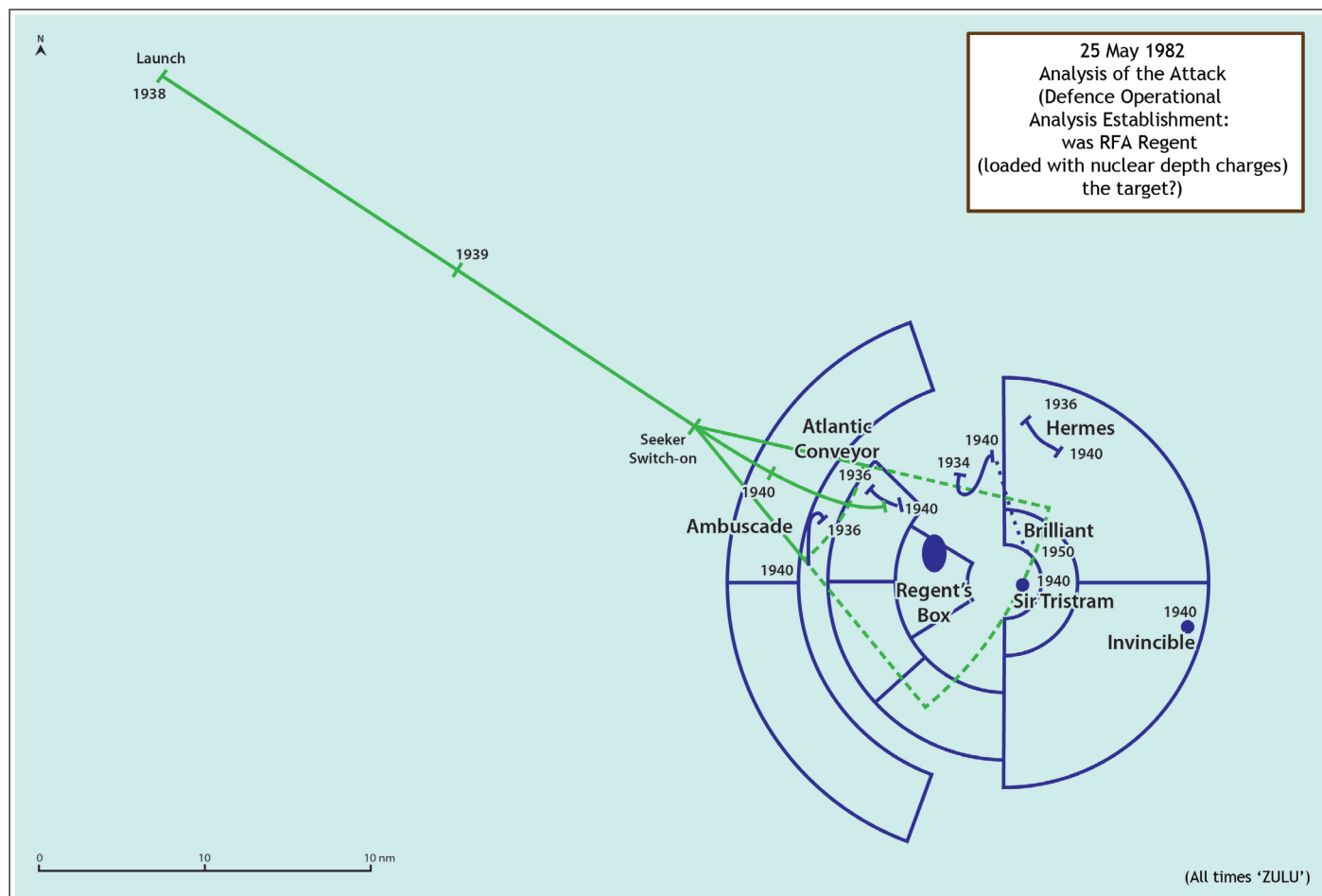
On the evening of the 25th, the first official communiqué was issued in Britain pointing out the attacks on the ships: “one of the Task Force ships has been badly damaged, and early dispatches state that it is in difficulty. Rescue operations are underway. I have no other details at this stage,” the MoD (Ministry of Defence) spokesman reported.

However, the BBC began to broadcast news of the day’s actions, issuing a statement saying that Argentine aircraft had attacked the Type 42 destroyer *Coventry* and the container ship ACL *Atlantic Conveyor*, confirmation of which came the following day on what the British press had dubbed a “Black Day”.

On the afternoon of the 26th, following official announcements to the press, the Secretary of State for Defence, Mr John Nott, made a statement to Parliament on the previous day’s actions. His report was followed by a heated discussion and questioning. The fleet continued to lose valuable ships and there were no positive results in the land campaign after the landing at San Carlos.

Finally, the smoking hulk of the *Atlantic Conveyor* sank in the South Atlantic, far from the cameras. The tug *Irishman* (requisitioned from United Towing on 7 May 1982) had started work in the early evening of the 27th in position 50° 30’ south, 54° 51’ west, and in the early hours of the following day the tow was cut off, probably due to the sinking of the bow and other sections of the vessel, and by 0400 only three containers were found floating, so that the *Atlantic Conveyor* was considered to have sunk during the night, presumably in position 50° 40.9’ S, 54° 28.9’ W.

It was not until 2 June that the Ministry of Defence Press Office had an approved text to release regarding the ship’s fate, “*Atlantic Conveyor*, which was attacked by Argentine Air Force on 25 May, sank on her own accord on 29 May”.



That 25 May was a black day for Woodward, who, in the solitude of his cabin on HMS *Hermes* (which was only six nautical miles from the *Atlantic Conveyor* when it was struck by the missiles) recorded that anxiety in his diary:

I sat down to finish my diary, and saw that it was still not quite midnight. 'Sod it!' I said to myself bitterly. 'It is still 25 May. Will this bloody day ever end?' In the late afternoon, I had felt fairly certain this was the worst day of my life. Now I was sure of it.

The next day a further review of the attack was made, which issued guidelines for the whole fleet:

- A. PICKETS VITAL FOR EARLY WARNING PREFERABLE WITH UAA1 (the ESM equipment).
- B. FORMATION TO BE AS DISPERSED AS POSSIBLE TO PREVENT RE-ACQUISITION IN SHADOW OF CHAFF. WIDE DISPERSION ACROSS THREAT BEARING BEING MORE EFFECTIVE THAN DOWN BEARING.
- C. PRESENT SMALLEST INCLINATION TO TARGET IF TURN TOWARDS.
- D. DEPLOYMENT CHAFF TO RIGHT OF THREAT BEARING.

At 1100 on Thursday 27, the Chiefs of Staff Committee had its 61st Meeting in Whitehall. Lieutenant General Glover (Deputy

Chief of the Defence Staff) (Intelligence) reviewed the intelligence available and – among other issues – said that “there was evidence that the Argentine Air Force was now using KC-130 tankers to refuel their aircraft on missions against the Falkland Islands”.

After a short discussion, the Chief of the Defence Staff, Admiral of the Fleet Sir Terence Lewin said they would wish to invite the News Release Group to prepare a Press brief about the *Atlantic Conveyor* “to point out that it appeared to have been hit by only one of the two Exocet missiles, that it was afloat and upright in normal draught, and that the ship would be examined to determine whether it and any of its cargo could be salvaged despite its extensive damage aft”. The Assistant Chief of the Defence Staff (Personnel & Logistics), Rear Admiral J W Walters, prepared a paper for the meeting examining the logistic implications of the loss of the equipment and stores in the *Atlantic Conveyor*. A signal from the Task Force Commander assessing his priority requirements for replacement and equipment, was also considered during the meeting.

The Argentines had overwhelmed all defences and reached, in this case, the heart of the British fleet. They had launched on what they considered to be a large target in the main body of the enemy formation: they had had enough time to corroborate the radar picture, get close and launch, which suggests that this was not a hasty shot at the first radar contact that appeared.

There was one missile left.

12

## 27–31 MAY: THE LAST ATTACK ON THE TASK FORCE

After the successful mission of 25 May, and with only one missile remaining, part of the squadron, together with 3-A-203 and 3-A-204 returned to Espora, both to “not expose all the planes to a British attack” (as their commander mentions), and to practice Exocet night firing. As Lieutenant Rodríguez Mariani recalled:

There was only one missile left and it was decided that, except for two planes that stayed to do a last mission, the rest of us would return to Espora to do intensive training in Exocet launching in night flights. So we practised in the Puerto Belgrano area, flying at two o'clock in the morning to be ready in case new missiles arrived.

There were only two aircraft left in Río Grande. The squadron was divided, part ready to attack in the south, part training to obtain a capability they lacked, and which could generate a big surprise in the enemy.

On 27 May, again, information provided by the Air Force radar in the Falklands/Malvinas, and analysis of it by naval personnel, reported that a Carrier Battle Group was operating about 100 nautical miles east of Port Stanley/Puerto Argentino.

Orders from the COAN were given to ready the two aircraft available at Río Grande, 3-A-202, which would be commanded by *Capitán de Corbeta* Alejandro “Pocho” Francisco, and his wingman would be *Teniente de Navío* Luis “Cola” Collavino, with 3-A-205. A single Exocet missile remained, which would be loaded on 3-A-202.

The other aircraft would provide electronic support to the first. Beyond that, 3-A-205 would depart with DEFA guns in place, with

full ammunition. It would be the first mission in which the Super Étendard would fly with them. Lieutenant Collavino also knew that, if intercepted, he would have to go out to protect the section leader with those weapons. Also, his aircraft would fly with three external fuel tanks.

To achieve surprise again, an attack from the south, which was thought to lack anti-aircraft cover, was considered. The preliminary idea for this came up in an informal talk among the pilots, as Lt Collavino recalls:

We got together and someone said: Why don't we do it like when you take penalties in a football match? Penalties are never aimed at the same place, to surprise the goalkeeper. We had already kicked to other sides of the goal. We agreed and, from there, it was decided to plan with that in mind.

The mission, due to its enormous distance, implied a double aerial refuelling on the inbound leg, for which the support of an Air Force Hercules was requested. Following the squadron's doctrine and previous experience, priority was given to maximising surprise (low-flying, radio silence, radar off), which promised to repeat the successes of previous attacks. The attack would be carried out on the 28th.

Captain Francisco recalls:

When Agotegaray and Rodríguez Mariani went out and did not launch, I already knew that it was my turn, that there would be missiles available. The attack on the *Invincible* was ordered on



27 May. At six or seven in the evening of that day, we met with Collavino in the hangar to plan everything. Colombo told us: 'This attack is yours. Plan it and do it the way you want to do it.' We told him we needed a tanker to go with us, and he passed the request on to the Air Force.

Despite this, the Argentine Air Force also had its own plans for attacking an aircraft carrier in the open sea. In early April 1982, it being clear that the British would send a military force to re-invade (or recover) the Falklands/Malvinas, the "Plan of Operations 2/82", called "Maintenance of Sovereignty", was drawn up within the Air Force Strategic Air Command. Among the provisions of the plan, item 28 gave the priorities "for the use of combat aircraft". The highest priority was the "attack on landing craft and landing troops". However, the word "aircraft carrier" was handwritten above all else.

Nevertheless, after the attacks in early May, enemy aircraft carriers had not come within the range of the Southern Air Force (SAF). Moreover, their precise location was not known, merely the approximate area in which they operated. And, even if they could be located, it had been concluded that attacking the fleet in open waters would not be a simple task.

On 22 May, Directive No. 1 was issued, complementary to the above plan: "The Commander-in-Chief of the Argentine Air Force has ordered the planning of an air operation to destroy the British aircraft carriers, using the Air Force's own resources and the Navy's Super Étendard aircraft". However, it was also made clear that "the exact location of the aircraft carrier(s) is not known".

So, in order to pinpoint that location, the Directive noted that the information could come from:

The Falklands/Malvinas radar

Air Force (Canberra or Boeing 707) or Navy (Tracker, Bandeirante or Neptune) aircraft flying at high altitude

"External sources".

On several occasions these "external sources" had detected enemy aircraft carriers, but this information was sporadic and not often accurate.

The Air Force called this source the "Invisible Friend" (the Navy referred to it in its documents as the "Magic Eye") and it was really a contact with the Soviet Embassy in Buenos Aires, which supplied, with some delay, information on targets at sea.

Such collaboration served both countries well: any damage to the Task Force would mean, for the Soviet Union, one fewer ship, plane or soldier to face in the great conflict that was looming over Europe in the midst of the Cold War.

At the time, the Soviet Military Attaché was Colonel Valentin Livtonchicov, who was provided with one of the embassy's few telephone lines so that he could liaise with senior Argentine Air Force authorities, and the embassy staff was increased by 22 people over the course of the conflict.

The information, possibly most of it, came from the system known as MKRTs (Legend), operational since 1975. This satellite constellation included two subsystems, both of which passed information to a control centre in Moscow, via the various Molniya-2 or Tsiklon communication satellites, or directly to aircraft or ships engaged in combat actions. The first subsystem included a network of satellites called US-P, which intercepted radio signals (of any kind) that might be emitted by an enemy ship (US stands

for "*Upravlayemyi Sputnik*" or controlled satellite, while P stands for passive signal reception system). In other words, they were electronic intelligence satellites (ELINT). The second subsystem was called US-A, the A being for active, using radar to locate ships at sea. In the West, the technology became known as RORSAT, which stands for Radar Ocean Reconnaissance Satellite. Both types of spacecraft were powered by a small nuclear reactor.

In the case of radar detection, it was estimated (by the 1970s) that the X-band radars carried by the satellites could detect small or medium-sized ships only in favourable circumstances (good weather and good propagation), while large ships (such as aircraft carriers) could almost always be detected.

From this constellation and during the conflict, the Kosmos-1355, electronic intelligence (US-P), which was launched on 29 April 1982, and the Kosmos 1365 (14 May) and 1372 (1 June), radar reconnaissance (US-A) satellites, were placed in orbits suitable for the Falklands/Malvinas, in addition to the usefulness of those satellites that were already deployed.

The system was operational in 1982 and, in one of the few acknowledgements of its existence by the Soviets, official sources indicated that "the high effectiveness of the system was demonstrated during the Anglo-Argentine conflict over the Falkland Islands in 1982. The system allowed a complete assessment of the situation at sea, and from the information received from the system, the (Navy) General Staff was able to determine the exact moment at which the British landing began".

Other information could come from "fishing vessels", submarines, communications intelligence (SIGINT) and other means of gathering data at sea.

Anyway, the Air Force plan went on to state that, once the location of the carriers had been pinpointed, a complex mission would be carried out, including:

Dassault Mirage III and IAI Dagger sorties from the mainland, simulating attacks on naval forces, but carrying exclusively air-to-air weaponry

FMA IA 58 Pucará sorties from the islands, to attack land targets

English Electric Canberra sorties, from a different axis to the main attack, to bomb the fleet from 42,000 feet

And, principally, to attack in a coordinated mission between naval Super Étendards and Douglas A-4Bs and A-4Cs

The plan, therefore, was an all-out effort, with ingredients from Operation Bolo (Vietnam, January 1967) and the B-17 Flying Fortress attack on Japanese carriers in the Battle of Midway (June 1942).

Unaware of this Directive, the naval aviators boarded their aircraft at noon on the 28th and, before starting the engines, were told that the mission was aborted, due to the unavailability of the KC-130 tanker. The mission was postponed until the following day.

Far from Río Grande, in *Comodoro Rivadavia*, the headquarters of the Southern Air Force, it was decided to carry out the operation against the aircraft carriers, as Brigadier Crespo (SAF Commander) had received at 0730 (on 29 May) a complementary report from the "external sources" with the position of *Hermes* and *Invincible*, and also of *Queen Elizabeth 2*, which continued to be a target of interest to the Argentines.

Yet, it was decided that day that the effort would be much more limited and that only A-4 aircraft would be added to the attack already planned by the Super Étendard squadron. The *Fuerza Aérea Sur* knew that it could not undertake an open sea mission without the support of the Super Étendard's navigation systems. None of its fighter aircraft had accurate navigation systems at sea, and its pilots lacked experience in counter-maritime operations. It was finally decided that the mission would be carried out by the A-4Cs of Fighter Group 4, then based at BAM San Julián.

Fragmentary Order 1268 stated that four aircraft would take part, bearing the call sign ZONDA (a hot wind from the Andes area, where Group 4 has its peacetime home base), each armed with three 500lb parachute-retarded bombs. The pilots were First Lieutenant José Vázquez, First Lieutenant Ernesto Ureta, First Lieutenant Omar Castillo and Ensign Gerardo Isaac. The A4-Cs (of which there were five, while an extra aircraft was brought along in case of failure) took off from San Julián and arrived at noon on the 29th at Río Grande.

While the COAN was aware of all this, the Second Naval Fighter and Attack Squadron was less so. At noon on the 29th, the Super Étendards were ordered to take off, taxiing to the runway, ready to depart in a few minutes. But, once again, the mission was cancelled, and the pilots were forced to get out of their aircraft.

According to Lieutenant Luis Collavino:

When we were returning to the hangar, Captain Colombo told us (and we saw them landing) that four A-4C aircraft would arrive, to do the same mission with us.

Captain Colombo had just heard about the mission and was not so keen on it:

The idea seemed bad to me. There were a lot of differences with the flight profiles. It complicated the mission for us. But because there was only one missile, which wasn't much, it was finally done.

It should be added that the Super Étendard pilots had already discussed with their naval A-4Q counterparts (with whom they shared a base and, in many cases, long-standing friendships) the possibility of missions combining both aircraft. But they had ruled them out, as the A4-Q pilots considered it impractical to attack an already alerted fleet in the open sea, just as the Super Étendard pilots

were afraid of losing the surprise of their attack in the company of other aircraft.

Nevertheless, an order was an order. Naval and Air Force pilots, from then on, got together and concentrated on carrying out a new detail of the mission, with the Navy pilots leading the mission planning and execution.

On 30 May, in the early morning, the Southern Air Force already had updated information from the "external sources", indicating that the aircraft carrier *Invincible* was at 51° 38'S and 53° 03'W, and *Hermes* was at 51° 34'S and 54° 30'W. The report stated that the area had south-westerly winds, 5/8 clouds, temperature 8 to 10°, water temperature 3 to 5°C and that the sea state was 3 or 4.

For its part, the radar located in the Falklands/Malvinas estimated that the position of the aircraft carriers, from 0900 to 1140, was 85 nautical miles at bearing 085°, while at 1400 it was at bearing 074° and 84 miles away. The information itself was contradictory, as there was a 90 nautical mile difference between the two positions. And, above all, the carriers were not at those positions, but slightly off. But that was the starting point for the planning.

The planned mission involved an initial route from Río Grande to the southeast. There, the two flights would rendezvous with the two KC-130H Hercules (an extra tanker had been added due to the number of aircraft involved) and refuel twice. From then on (about 300 nautical miles to the target), they would turn north and fly at low altitude, the two Super Étendards in front in charge of navigation (about 1,000 metres apart) and two A-4Cs on either side.

Mission planning took into consideration that a possible radar picket ship had been detected in a position south of the islands, which was to be avoided. The squadron, it should be noted, recalled its own detection of a radar in a coincident position during the mission on 23 May, when the two aircraft had to turn rapidly to the south.

According to Captain Francisco:

The carrier was exactly 480 miles from Río Grande, but of course we could not make a direct route, first because of the ship (radar picket) and secondly because in the vicinity of the islands there was a high density of ships and aircraft and it was highly probable that we would be detected. We did not have much information on the fleet's movements or disposition. We thought of making a diversion to the south, so in order to evade enemy radar we



Super Étendard 3-A-205 armed with an AM-39. 3-A-205 took part in only one mission during the conflict, on 30 May, carrying no missiles. (via Claudio Meunier)



**Table 7: 30 May mission**

Pilot/Aircraft Commander	Aircraft	Registration	Weapon Load	Comments
<i>Capitán de Corbeta</i> Francisco	Super Étendard	3-A-202	1x AM-39 Exocet	Flight leader
<i>Teniente de Navío</i> Collavino	Super Étendard	3-A-205	DEFA Guns	Electronic support
<i>Primer Teniente</i> Vázquez	A-4C	C-301	Guns/3x 500lb retarded bombs	KIA
<i>Primer Teniente</i> Castillo	A-4C	C-310	Guns/3x 500lb retarded bombs	KIA
<i>Primer Teniente</i> Ureta	A-4C	C-321	Guns/3x 500lb retarded bombs	
<i>Alférez</i> Isaac	A-4C	C-318	Guns/3x 500lb retarded bombs	
<i>Vicecomodoro</i> Litrenta	KC-130H	TC-69		Tanker
<i>Vicecomodoro</i> Noé	KC-130H	TC-70		Tanker

continue flying with us and accompany us, up to 200 miles (from the enemy): we would leave with full fuel.

Once the target was detected by the Super Étendard, the last AM-39 would be launched and the A-4Cs would pursue its trail at maximum speed to attack the same target.

Finally, at 1125 on 30 May, the KC-130s (TC-69 and TC-70, with the call sign RANQUEL) took off from Río Gallegos, as did the two Super Étendards at 1230 from Río Grande and, five minutes later, the four Skyhawks took off. They set a course southeast, cruising at 21,000 feet. On their way to refuel and then to the British fleet.

first had to operate at 210 (21,000 feet) to rendezvous with the tanker and, in order not to be detected at 210, we had to be 200 miles away. We therefore plotted an arc of 200 miles from the picket ship and another of the same radius from the carrier. Thus, we determined two points that kept us out of radar range and at which we were to refuel.

However, this movement implied a large deviation and fuel consumption, so we also modified what the doctrine indicated about refuelling (which implied refuelling only once, advancing 30 miles with the refueller).

Again, Captain Francisco:

This approach was very far from the profile initially intended. We were meeting the tanker and we were supposed to leave it at 30 miles. Therefore, the requirement was that the tanker would

For the Carrier Battle Group, the afternoon of 30 May 1982 would pass without too much distress.

HMS *Valiant* (Commander Tom Le Marchand), operating in the vicinity of the Isla de los Estados did not make any significant detections that could have alerted the carrier group. It is worth pointing out that the previous day it had detected with its ESM equipment the radar of a Super Étendard (probably Francisco and Collavino testing the equipment prior to launch).

Nevertheless, the warning of a possible aerial attack ("yellow alert") arrived at 1345 (possibly from the Chilean radar near Punta Arenas). Forty minutes later, without any contact, the alert was cancelled. The British ships were no longer expecting any further enemy action.

At this moment, the fleet was located some 110 nautical miles from Port Stanley/Puerto Argentino on a bearing of 080°, formed in a shape that provided the maximum protection against a possible air



*Teniente de Navío* Luis "Cola" Collavino, in command of 3-A-205 refuelling in the Argentine Air Force KC-130H, en route to the Task Force on 30 May 1982. (Argentine Air Force)





*Capitán de Corbeta Alejandro "Pocho" Francisco, refuelling 3-A-202, armed with the last AM-39 missile available to the Argentine Navy. Behind, the four A-4C Skyhawks of the Argentine Air Force. (Argentine Air Force)*

attack from the west or north-west. Three destroyers armed with Sea Dart anti-aircraft missiles were in a semi-circle that, like a shield, provided protection to the High Value Units. From north to south, HMS *Bristol* (Type 82), HMS *Cardiff* and HMS *Exeter* (both Type 42s) were scanning the skies for enemy aircraft, located at between 25 and 35nm from the main body.

As an inner protection screen, especially providing an anti-submarine screen, between five and 10nm from the main body, were the Type 21 frigate HMS *Ambuscade* and the County-class destroyer HMS *Glamorgan*, both with missile systems of smaller performance. Close by HMS *Ambuscade* was the Leander-class frigate HMS *Andromeda*. The main body (whose guide that day was RFA *Regent*) included frigates such as HMS *Plymouth* and HMS *Alacrity*, other logistic and support ships as well as HMS *Invincible*.

Contrary to expectations, the aircraft carrier did not have any close escort armed with the lethal Sea Wolf missiles. *Invincible* also had another problem: that day its own Sea Dart system was out of operation. The other aircraft carrier, HMS *Hermes*, was located seven nautical miles to the north of *Invincible*.

It is worth adding that the weather that day was not bad, with a visibility of 10 miles, limited only by some isolated squalls.

Still far away, the six aircraft navigated smoothly, even when the Super Étendard visually detected a lone civilian vessel in the middle of the sea, possibly the *Volzhanin*, a Soviet trawler. Shortly afterwards, the refuelling went ahead without any problems, both times as planned. The Super Étendards went to one of the Hercules and the ZONDAs to the other, taking turns to refuel.

At this point, a curious situation arose. Argentine Naval Aviation does not fly with callsigns but, because it was a joint mission, the Air Force had named the Super Étendard section with the callsign ALA. ALA 1 was "Pocho" Francisco and ALA 2 was "Cola" Collavino.

But the naval pilots had not been informed of this. As Lieutenant Collavino relates:

When we arrived at the Hercules, we heard over the radio ALA 1, ALA 1 and the instructions to couple up to take on fuel. I had no idea what ALA 1 meant. For us naval pilots, ALA 1 means a plane is ready on the flight deck of the aircraft carrier. Anyway, all we wanted was for them to stop broadcasting on the radio, so we coupled up to take on fuel as soon as possible. It wasn't until the mission was over that I found out my flight call sign was ALA 2. For us, it was the flight of "Pocho" and "Cola".

The refuelling manoeuvre is recounted by Vicecomodoro Luis Litrenta, commander of one of the KC-130 Hercules (TC-69):

The rendezvous had been scheduled to take place at 6,000 meters on heading 090° and five seconds prior to the agreed time, six little dots appeared on the horizon, these soon turning into the awaited planes. Through a brief UHF signal, we informed the leaders of both formations (A-4C and Super Étendard) that everything was ok and that they could begin refuelling at the new level (5,400 meters/17,700 feet). The Navy planes approached Noé's KC-130 and those from the Air Force did likewise with ours. Everything was working out well; through our instruments, we could see about 1,200 litres/minute being transferred to the tanks of the fighter-bombers with accurate movements and in full silence. There we are: Twenty-two Argentine men crossing the southern sky on the eve of events that were to be fundamental for the continuity of the war.

Now, the radio broadcast was not something they were supposed to do, which Captain Francisco noted in his post-flight report:





Final leg to the target. Ahead is the Super Étendard flight and the ZONDA flight further back. In a few minutes, ZONDA 1 and 2 will be on the left and ZONDA 3 and 4 on the right. 30 May 1982. (Roberto Briend, via Eduardo Daghero)

Radio silence was violated. One of the KC-130s informed the A-4C leader that they were initiating the leg and homed to enable the rendezvous. During the refuelling, it was again violated by a KC-130 sending out positioning instructions to the A-4C aircraft.

Once the manoeuvre was completed (with full tanks) as planned, the aircraft turned north and began to cruise at low level, finally coming within 130 miles of the target at 100 feet and 450 knots.

From then on, the sky filled with clouds, causing the pilots to lose each other. As agreed, at about 55 miles from the reported position of the target, the Super Étendards began their search.

Again, Captain Francisco:

Tactics dictated that at 55 miles we would rise to 2,500 feet and break electronic silence, turn on the radar, the leader on 80 miles scale, the wingman on 40 and make tactical communications. The leader on 80 because the ship should be about 55 miles away and the wingman would emit on 40 to comb the sea ahead and then go to 80. What we saw at that time was a major echo, a large one, with a medium one to the right. The large echo was compatible with an aircraft carrier.

The Super Étendards then flew low again, now at 300 feet.

The calm of the fleet that afternoon was broken at 1430, when an operator of an FH5 (an HF Direction Finder based on tube technology with its origins in the Second World War) on HMS *Exeter* detected urgent voices in Spanish on the frequency of 12.333 KHz. Although it was not possible to understand what these voices were saying or the direction of the transmission, immediately an alert was ordered within the fleet, assuming that an attack could be materialising.

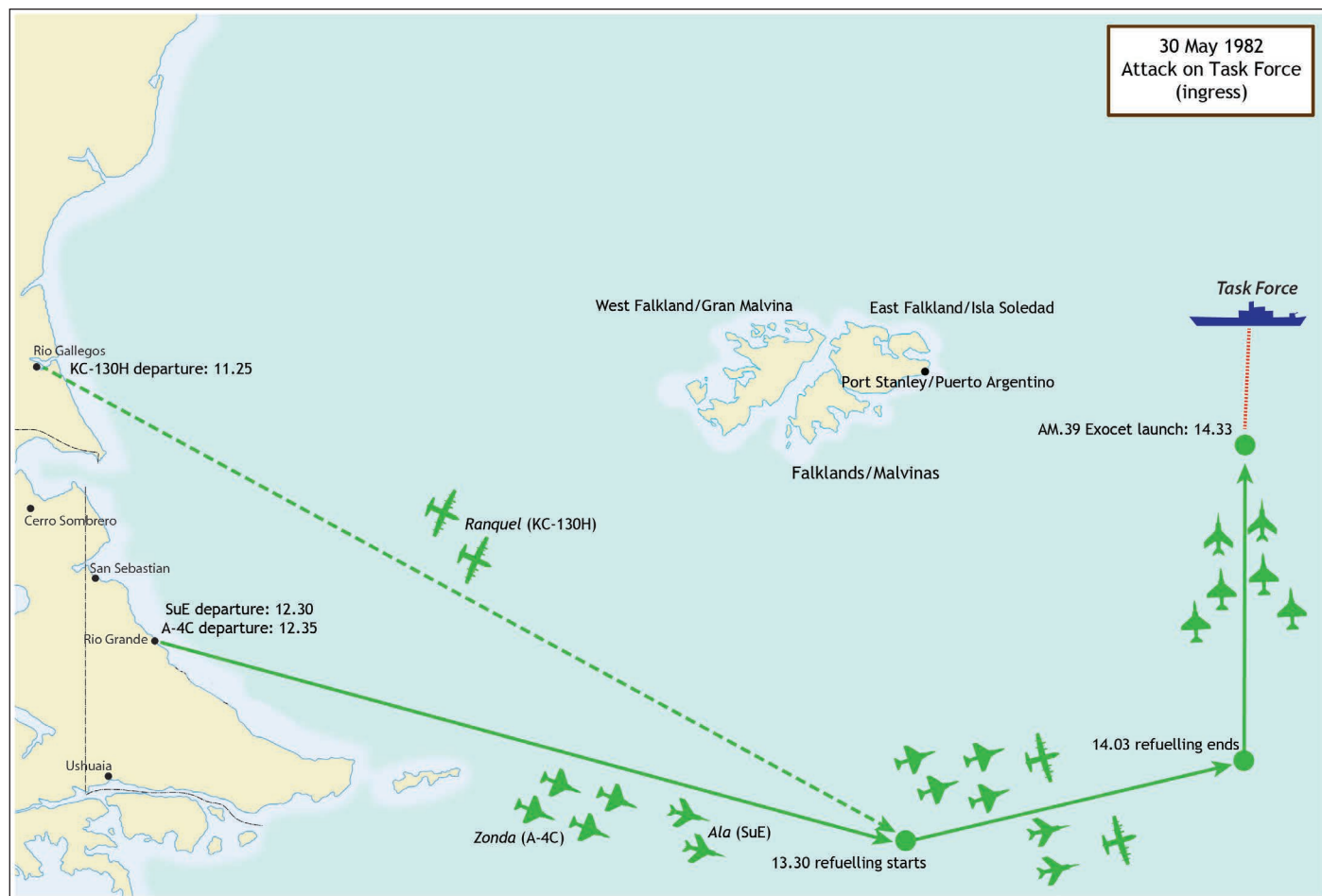
At this moment, the Lynx HAS.2 from the frigate HMS *Andromeda* (XV722 affectionately known as ARFA) manned by Commander Bob McKellar and Lieutenant Larry Jeram-Croft was some 15/20 miles to the west of *Exeter*. The flight was relaxed, and the crew had the task of providing early warning of an attack, for which they used their Orange Crop ESM equipment (as well as their eyes), which was originally designed and developed to intercept and locate submarines based on their transmissions. Additionally, it was also fitted with the Hampton Mayfair gear.

According to Lieutenant Jeram-Croft:

We were the only Lynx on picket duty – all of the Lynx in the fleet took turns to do this. The ECM jammer was not necessary for this task. The important piece of equipment was ‘Orange Crop’ our ESM equipment which all Lynx had by then. It was the only form of Airborne Early Warning we had to detect the Étendard radar at time of weapon launch. The Lynx would patrol up ahead of the force listening for early detection. Suddenly, the “Orange Crop” detected a radar, which was clearly an Étendard. We called the controller in *Hermes* and informed him of a contact to the south. At the same time, one of the ships alerted the detection of the same radar and confirmed the detection.

Effectively, at 1431 the UAA-1 ESM equipment on HMS *Exeter* detected the emission of an Agave radar to the south of the formation. Handbrake! And the fleet prepared to deal with another missile attack. Immediately, HMS *Ambuscade* and HMS *Glamorgan* corroborated the information, announcing over the net the detections of this radar as well.

Able Seaman Ken Griffiths, a radar operator on HMS *Cardiff* found himself standing behind one of their radar screens at this moment.



The Étendard radar was picked up by both *Cardiff* and *Exeter*'s UAA-1 operators and broadcast on LAAWC (UHF) radio frequency and AAWC (HF). *Exeter* transmitted the A4s and the Exocet on data link 10...I could see this on the TI Op radar. Link 10 is a method of transmitting what you see on radar in encrypted data bursts to other ships' radar. It uses UHF or HF and basically you see what the other ships see...thus extending your ability to build up a force picture for your command. In theory, it replaces voice reports between ships although this was not the case in 1982.

Bearing in mind the profile of the previous Argentine missions, it was assumed that another attack with Exocet was imminent and immediately the launch of Chaff Delta was ordered. ZIPPO 4! ZIPPO 4! What had been ordered (for a frigate or destroyer) was the firing of 12 chaff rockets in the case of a ZIPPO 4 code word, so that another firing could take place almost immediately with the remaining four rockets in case it was necessary (there were usually 16 rockets primed to be launched). Also, according to pre-agreed directives, ships would turn in order to put their starboard quarter in the direction of the attack.

A minute later (1432), the 1022 radar of HMS *Exeter* detected three contacts to the south at 29 nautical miles, which were also detected by the 992 radar operator on HMS *Invincible*.

At this moment, the ESM equipment on HMS *Ambuscade* informed that the parameters of the Agave radar had changed to a short pulse of high repetition. It was considered that the Argentine pilot was looking for a better picture on his screen, or it was the emission from the radar on the other aircraft.

According to Captain Francisco, 40 miles to the target they made a second climb:

We rose to 1,500 feet. With the radar scale at 40 miles, the Exocet begins the launch phase. We communicated again. The other plane matched the picture I was seeing in my radar.

Lieutenant Luis Collavino also remembers:

At the time of the attack there were cumulus clouds with rain underneath them. In normal mode – long pulse – those cumulus clouds returned a very similar image to that of a surface echo. When switching to short pulse, the screen is cleared of false echoes, the cumulus, leaving only real echoes.

On this second climb, in order to lock on a target, I asked the leader to switch to short pulse, leaving one large (I would say, 'very large') echo and one or two very small ones.

Both planes then descended again and Francisco broke the radio silence and said to Collavino, "locked on the biggest, launch" and then informed the A-4Cs, "ahead, 20 miles", telling them where their target was. He then pressed the fire button and the Exocet detached itself from the Super Étendard and ignited its rocket engine.

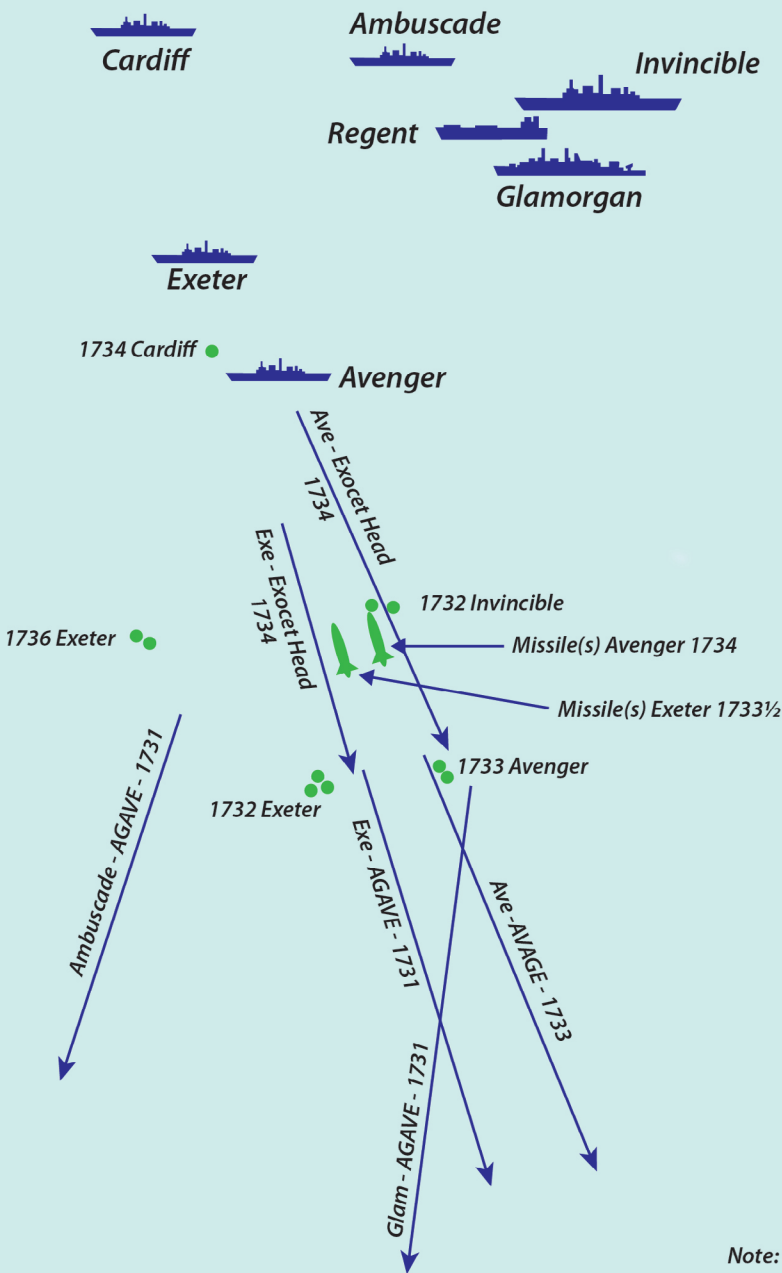
On the missile's warhead, the ground crew had written "For the boys of the *Belgrano*", in remembrance of those who had perished in the sinking of that ship on 2 May.

With nothing more to do, the two naval pilots turned left and began their return at maximum speed (550 nautical miles per hour). The only thing they had to be aware of was the radar picket ship south of the islands, so the agreed course to Río Grande involved a detour, to keep at least 50 miles away from it. At that point, it no longer mattered to be detected, but to avoid being shot down.



30 May 1982  
Attack on Task Force  
(initial stages of attack)

  
Bristol



Note: Green dots represent ships contacts

0 4 8 nm

(all times are 'ZULU')

Within minutes of the escape (about 30 miles from the fleet), Captain Francisco heard Lieutenant Collavino's alert that they had wolves (enemy aircraft) behind them.

"Where are they?" Captain Francisco turned his head to both sides, trying to look for the wolves.

"In the tail, in the tail", Collavino pointed out.

"But where are they, I don't see them! Are they Sea Harriers?"

"No, sir, you misunderstood me. I didn't say wolves, I said noises". Lieutenant Collavino's RWR had detected radar emissions ("noises"), indicating on the display that they had been picked up by the BF's rear sensor.

What a scare!

They did 100 miles at low level, maintaining 550 knots for the first 50 miles and then reducing speed to 450. From there, they climbed to 37,000 feet and finally landed at Río Grande with only 15 minutes of fuel. They had declined, with a gentle flap of their wings, the KC-130's offer to refuel.

For their part, the four Skyhawks accelerated and followed the missile's path, which they lost on the horizon, the missile having a higher speed than the aircraft.

On the bow of *Exeter*, the Sea Dart launcher rotated abruptly and with two targets locked (one on each of the ship's 909 fire radars located under the white domes on each end of the ship), in rapid succession it fired the two waiting missiles, which took off leaving a large white trail of smoke behind them. The ship had the latest updates in equipment and software and, also, a Captain who was specialist in electronic warfare. All of this gave it an advantage of up to 15 seconds when it came to fire its missiles in comparison with its batch 1 sisters, such as HMS *Cardiff*. The missiles, heading off to the south, separated from their boosters, began their intercept course against the incoming contacts and disappeared in the horizon.

The Type 21 frigate HMS *Avenger* found itself at this moment fortunately to the south of HMS *Exeter*, on its way from the Carrier Battle Group towards the islands in order to disembark 24 members of the SBS in the area of Volunteer Beach (Playa Voluntario) to the north of the capital. Above *Avenger's* flight deck, Yankee Delta, a Wessex V from 848 Naval Air Squadron was conducting a vertical replenishment and delivering stores as well as spares to the ship.

At the moment of the initial alarm, the direction of the attack was initially misreported in the Operations Room as coming in from the north, instead of the south (the message from *Exeter* was not sufficiently clear, such is the case that it was reported incorrectly in *Invincible*). Therefore, *Avenger* turned to put the stern of the ship and its Seacat missile launchers in the presumed direction of the attack while firing off chaff and speeded up in order to escape from the area of the attack. The Wessex was then ordered to move away (it had nearly been hit by the chaff rockets fired), which it only partially carried out, since it remained around the stern of the ship.

At 1433, three minutes after the initial alert, *Avenger* was able to detect the radar emissions and at the same time the 992 radar detected two echoes at 22 nautical miles which were coming from the south, heading north. Clearly, the ship was heading towards the enemy (not away from it), and the chaff which had been fired by the ship was being left behind and would be of scarce benefit. The commander, Hugo White, decided he could not run the risk of changing course and present the side of his ship as a target, but instead reduced speed to a minimum.

At almost the same moment, a few miles away, the always vigilant (and well equipped) operations room of *Exeter* detected

the launch of the Exocet had taken place at 22 nautical miles to the south, corroborated moments later by *Avenger*, which evaluated that the missile launch had taken place on a bearing of 160° and 15 miles away.

Moments later, they began to receive radar emissions from the homing head of the missile, which by now was searching for its target. ZIPPO 1 was transmitted on the network (meaning a missile had been detected at close distance) and the units of the fleet once again fired a new chaff pattern, now to confuse the homing head of the missile.

In HMS *Cardiff*, miles behind the action, the situation was very confusing, according to one of its radar operators.

I distinctly remember seeing the Exocet and up to three other intermittent radar contacts. I did not see each of them every sweep (992) and it was very difficult to determine how many there was. It was painfully confusing, and we (*Cardiff*) did not know what was happening with any accuracy.

From this moment on, a controversy arose. While the Argentine pilots claim to have attacked HMS *Invincible*, the British sailors claim that the ship attacked was HMS *Avenger*.

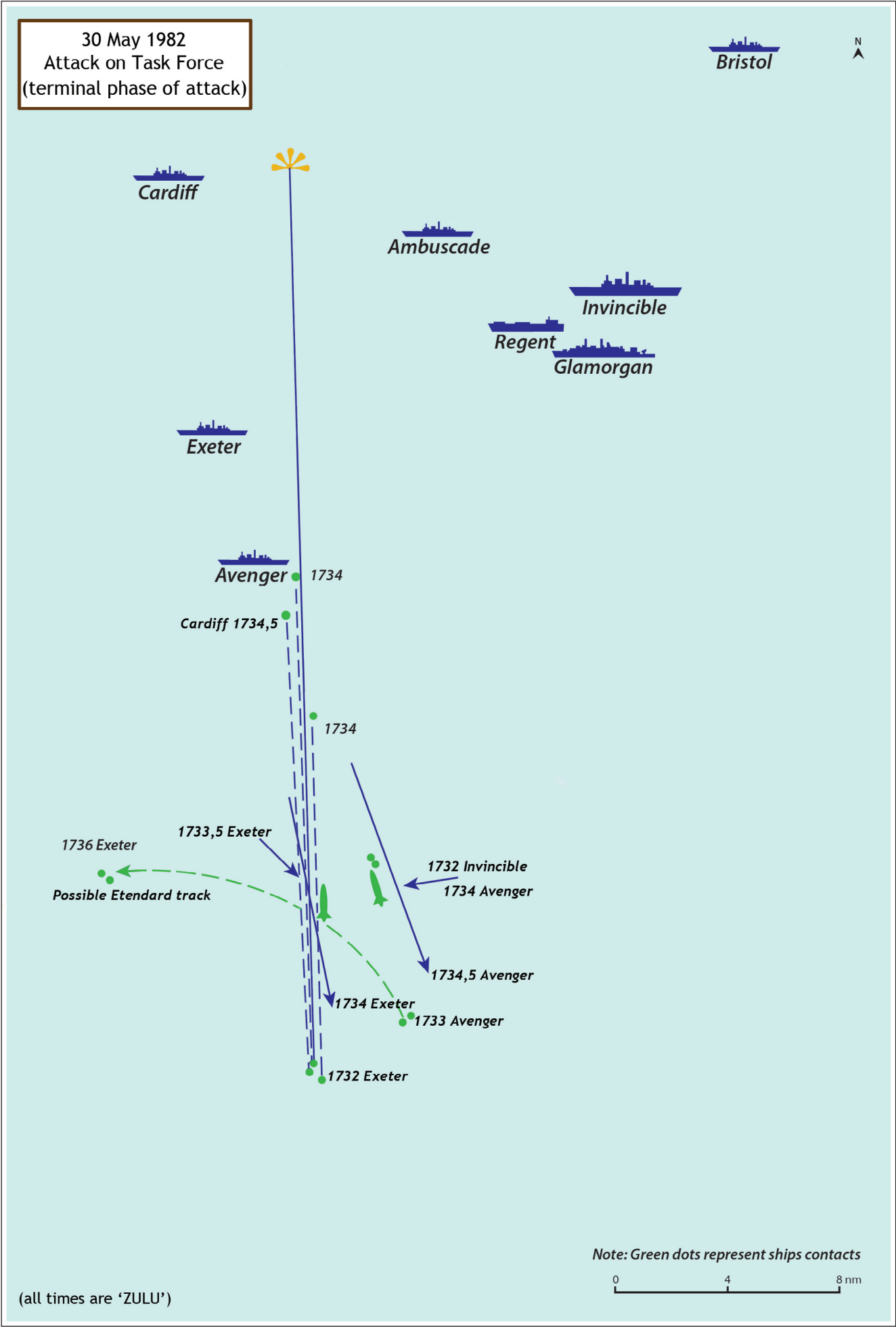
After having detected the launch of the missile, three of the screen ships detected the turn and escape of the aircraft (one or two according to the informant), and at the same time multiple contacts continued to fly north at a speed of 527 knots. However, in the chaotic few seconds that passed, after an explosion on the horizon, it was assumed that at 1434, the second missile launched by *Exeter* had impacted on its target.

On the radar screen in HMS *Invincible* the operator clearly saw the results of a large explosion, which continued to be displayed on his screen for three rotations of the radar. It is not clear what happened to the first missile fired by the ship, but its launch scared the crew of *Andromeda's* Lynx, which now found itself still in the area of the attack:

We had done our job. There was nothing else we could do as we were far too far away to deploy the jammer. We had already decided what to do next – run away! We knew it was possible that the Argies would have escorts for the Étendards and that we could get caught up with them. The only thing an unarmed helicopter could do was hide. I accelerated up to our max speed of 150 knots and headed for a nice big fat cumulus cloud back towards the force. We never got there. Suddenly, a continuous scream came out from the "Orange Crop". Bob immediately recognised it as a 909 radar lock on. He looked over his left shoulder and uttered those immortal words: "Shit, they are firing at us". I banked the aircraft hard left and looked. I actually saw the smoke trail of at least one Sea Dart coming up at us. I still have the odd nightmare about it. I knew we were dead. To this day I have no idea if what I did next saved our lives, but in an instinctive reaction, I pushed the cyclic stick fully forward. We dived, and thank God I was in a Lynx, because no other helicopter in the world could have taken the abuse. We pulled out at about 2,000 feet, amazed we were still in one piece.

From *Exeter*, they were conscious that the missile would pass close to the Lynx, but they decided to fire anyway. According to its commander, Captain Hugh Balfour:





There was a Lynx helicopter on the bearing, returning from a surface search mission. The Lynx thought we'd locked on to her, so we shouted at it to freeze and climb; so, I was happy we wouldn't hit them.

At that moment, *Exeter* already had a third missile in the air, which they believed 30 seconds later (at 1434 and 30 seconds) had impacted on another aircraft. According to the radar operator, despite the shooting downs, the contacts opened up and continued the attack.

The commander of *Exeter*, Captain Hugh Balfour, said about the missile launches:

We fired the first Sea Dart missile, then a second...I decided I was just going to have to go for it, or somebody like *Avenger* or us was going to get sunk. I didn't know what the missile profile was, so I just prayed to God and fired.

To the south of this position, HMS *Avenger* followed the attack with its own radar. Its cannon, a 4.5in Vickers Mk.8 was ready to fire along the bearing of the attackers, and at the same time a light machine gun was being prepared to fire from the wing of the bridge. The 20mm cannon was being moved to a new position on the flight deck. There were no other anti-aircraft guns available.

*Avenger*, additionally, reloaded and fired more chaff, its commander considering that at this moment "I had discarded all desires to economise its use". At 1437, HMS *Avenger*, while manoeuvring beneath its chaff cloud, reported that it was under attack by three Skyhawks. There was some surprise in the other ships to find out that the attack was not exclusively an attack by Exocet.

The cannon fired two or three rounds at 9,000 yards, then stopped. It was switched over to manual controls and fired another seven rounds of fragmentation shells with proximity fuses, while *Avenger* opened fire with the only machine gun available. One of the aircraft was shot down a short distance from the ship, which was thought to be an explosion of its own bombs or from the anti-aircraft fire. The ship did not report any damage (none of the bombs that fell into the sea exploded) but reported having shot down an Exocet with one of the first salvoes of the cannon, and with retrospect, also a Skyhawk.

Lieutenant Commander Tony Bolingbroke, First Lieutenant of the ship, at that moment of the attack, was on the bridge of HMS *Avenger*:

The Exocets fired towards us did not lock on to us but (we think) maybe to *Exeter* some 10 miles to the east of us. They were certainly heading almost right at us. One splashed not far from us, causing our team to claim that we shot it down. If we did, it was a supremely lucky shot, but I suspect we didn't. There was some suggestion the "shell splash" bunted it downwards. We certainly shot down one of the three A4s that followed in astern of the Super Étendard's Exocets – it kept on flying, dropped its bombs and then cartwheeled into the sea beside us.

The Master at Arms, Bill Jarvis, found himself in the same location as the First Lieutenant:

I could see three Skyhawks as they flew towards us, two along the port side from the bow, and the other on the starboard side weaving and scraping the waves, low and fast. I focused my binoculars on the closest on the port side and thought how ill-fated it seemed that they were coming straight towards us, towards

me. As the aircraft reached the bow of the ship, the First Officer gave the order to take cover and we threw ourselves onto the deck, face down, with our hands over our necks. The First Officer landed on top of me. The two aircraft on the port side flew past below the level of the windows on the bridge and each dropped three bombs harmlessly into the sea. The aircraft on the starboard side dropped its bombs just in front of the ship, and as the bombs were dropping, it started to turn and touched the surface of the sea and cartwheeled into the sea off our starboard side.

Immediately after the report from *Avenger*, the radar on *Invincible* reported two contacts fleeing from the attacked ship at high speed. *Exeter* remained locked on with its Sea Dart system but the commander, Hugh Balfour, decided not to fire on the two aircraft that were retreating to the west. Sea Harriers had been ordered to intercept the withdrawing enemy aircraft, and they only had seven missiles remaining in their magazine with no expectation to receive more in the coming days.

For its part, HMS *Cardiff* followed the action without being able to lock its fire control radars on the aircraft. According to Able Seaman Griffiths:

HMS *Cardiff* was unable to get a lock on any contacts. We tried to use the *Exeter* link 10 tracks to allocate to our 909 radars and our operators tried desperately to produce our own tracks, but we never allocated any of the attackers to Sea Dart.

The story is different according to the surviving Air Force A-4 pilots.

According to First Lieutenant Ureta:

After refuelling, we set a heading of 330° and about 25 minutes before the Exocet launch, we turned right to a heading of 360°. With that course and being 20 miles away, ALA 1 launched the Exocet missile. In that situation we held course until we saw the carrier with a dense column of black smoke, which was the perfect reference to reach the ship without having to look at the instruments. Therefore, I can say that the final course of attack was 360° (north). When we passed over the aircraft carrier, I estimate that it had a bow with a general heading of 330°, as I estimate that my course diverged by about 30° with respect to the longitudinal axis of the ship, I could see the bow to my left and I passed over the stern, almost touching the white dome on the stern of the aircraft carrier, the radar of the Sea Dart missile system.

It also had anti-aircraft artillery for defence, I can't say exactly what calibre, but I can assure you that I could see the explosions of ammunition being fired at us in front of my aircraft on the approach. Castillo would have been downed by this artillery, as it was shot down when it was only 500/400 metres from the aircraft carrier.

On the other hand, Vázquez, was shot down some 14/10kms before reaching the ship, so I can affirm that it was hit by a missile that approached from the left of the formation. We adopted a line formation, where Vázquez was on my left and Castillo was on his left. I was to the right of Vázquez and slightly behind and to my right was Isaac. I cannot say what type of missile shot down Vázquez, but I can assure that this weapon was not launched from the aircraft carrier *Invincible*, so it is clear that there was some kind of escort ship in the area and it was from these frigates or destroyers that the missile that hit Vázquez's plane would have been launched. This defensive shield was located in the western



sector of the aircraft carrier's position, since we approached from the east/southeast and did not see any vessels. Evidently, they always assumed that possible attacks on the main body of the Task Force would come from the west, so we were able to achieve surprise in the attack.

The weather during the flight and particularly where the carrier was located (100nm east of Malvinas), was about 7/8 cloud at about 300 m, with isolated showers, but with very good horizontal visibility. The scene was totally grey, as the sunless sea, the aircraft carrier itself and the clouds were of that colour.

The distance values and details described are what I saw as I flew towards a very important target, at an altitude of 20 metres and a speed of 450 knots.

According to Ensign Isaac:

The missile was lost on the horizon, which was totally grey, and after a while the silhouette of a single ship appeared, a very large ship with a different silhouette to the ones I had seen before. The asymmetry of the ship caught my attention: what we were looking at was an aircraft carrier.

As soon as I determined that this was my target, something happened to me that is written in the manuals called 'target fascination'. The person who is in combat and sees his target begins to close his vision, loses sight of everything that is going on around him and focuses on his target, it happened to me exactly as it says in the books. When I centre the target, smoke starts to

come out of the sides of the ship, and as we get closer it starts to settle over the sea.

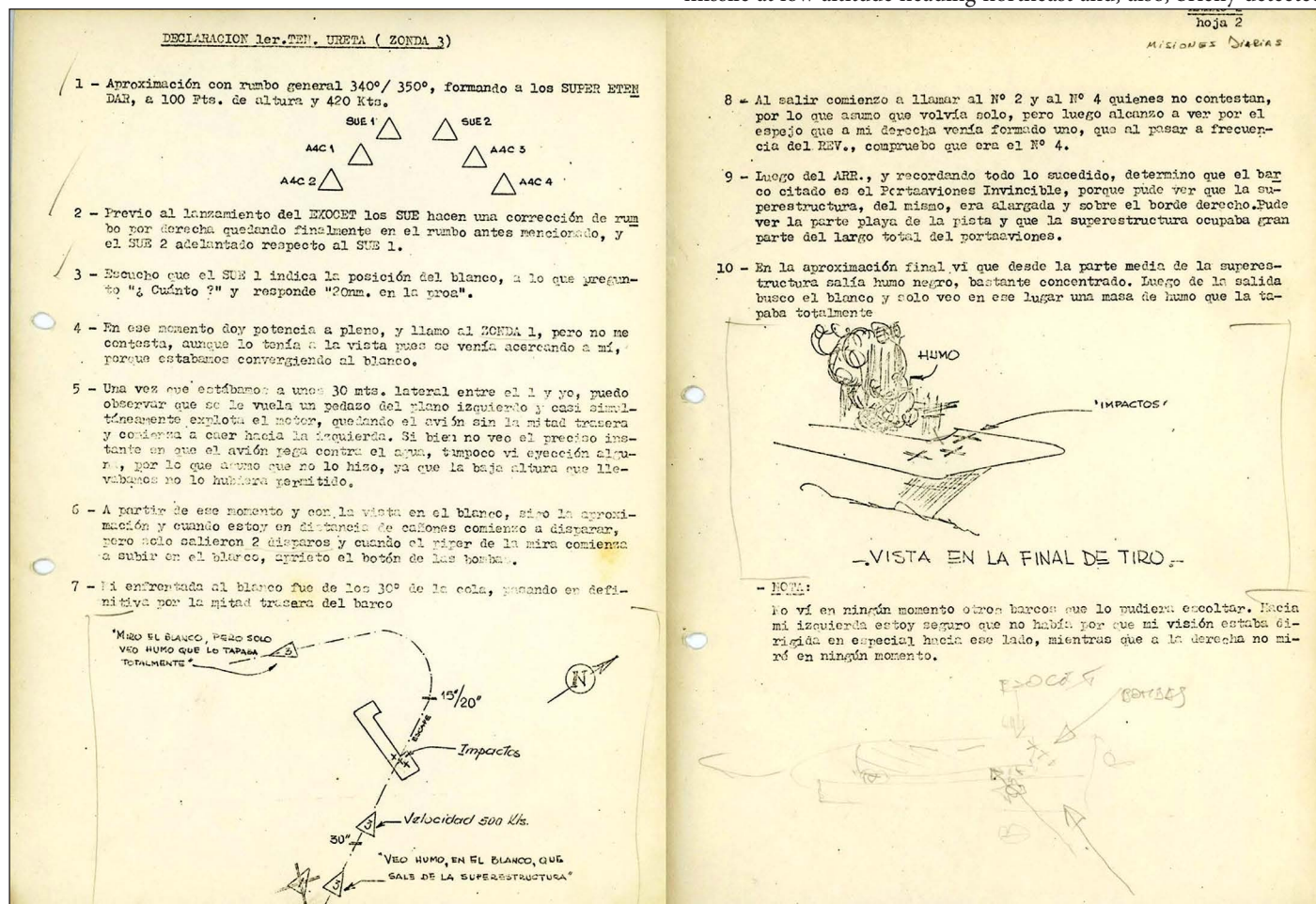
While all this was going on, eight kilometres from the aircraft carrier I felt in my cockpit a very loud explosion, but I instantly realised that it wasn't from my plane, that it was from outside, so I looked to the left and about 150 metres away I saw an A4 exploding. It had broken off a wing, the aircraft showed its belly and hit the sea. The second shoot down took place a few minutes later, I felt in my cockpit a much more intense explosion than the previous one. I also knew instantly that it was not my plane, that it was from outside. I looked to my left and saw an A4 about five metres from my left wing exploding.

I grabbed the carrier from astern and it was totally covered in smoke, I could see the island, so when I had it overhead, I pressed the trigger, I couldn't get out from above, it was too close, so I turned right and passed it on the right side.

On *Invincible*, two 820 Squadron Sea King helicopters in anti-submarine configuration, that had been deployed the previous day to the RFA *Tidepool*, had just landed on the deck when the incoming attack was reported.

On the stern of the ship, Lieutenant Charlie Cantan was sitting in his Sea Harrier, XZ495/003 (801 Naval Air Squadron) at Alert 5. The aircraft carried its usual armament of two air-to-air AIM-9L Sidewinder missiles, two 30mm Aden cannons and two drop tanks. At this moment, the order was to launch, on a bearing of 220° at 1,500 feet.

Shortly after, Cantan saw a wake, which he considered to be a missile at low altitude heading northeast and, also, briefly detected



Statement of First Lieutenant Ernesto Ureta (ZONDA 3) about the mission on 30 May. Note his hand drawings describing the final approach on the target which is described as HMS *Invincible*. (Dirección de Estudios Históricos de la Fuerza Aérea Argentina)



Two crewmen of HMS *Invincible* stand guard with a machine gun. The last line of defence against an attack by Argentine aircraft. (Crown Copyright)

in his Blue Fox radar a distant air contact, at some 12 nautical miles. Putting himself on a heading towards this contact, he was illuminated by a Type 909 fire control radar (possibly by HMS *Exeter*) which caused him to evade it and broadcast his presence on the different radio channels. Shortly afterwards, once he had got over his shock, he was told that his task had been cancelled as the contacts had opened to the west and given the distance to them, there was no reason to give chase.

He then went to a CAP station to the southwest, flying a total of 1 hour and 20 minutes before landing back on the aircraft carrier. From the other direction, Flight Lieutenant Ian Mortimer, (also part of 801 NAS) had taken off from the carrier at 1335 for a CAP station close to Stanley/Puerto Argentino, where he did not gain any contacts, but had received ineffective ground fire.

He was on his way back to the carrier when he was informed by the air controller of the red alert and the possible Exocet attack, being vectored to a bearing of 130° towards a contact 45 nautical miles from his position. That contact disappeared, but was shortly reacquired by the aircraft carrier, this time at 27 nautical miles. Flight Lieutenant Mortimer closed to 10 nautical miles from the position, but by 1450 the alert had been cancelled. It is also worth adding that at 1419, a pair of Sea Harriers (from 800 NAS) had taken off from HMS *Hermes*.

According to the air controller of HMS *Invincible* that day, Lieutenant P.G. King, they got very close that day:

We were very close to intercepting the Super Étendards on the 30th of May – possibly the most stimulating experience I had, trying to intercept them with two Sea Harriers.

Meanwhile, the Exocet had penetrated the screen, presumably passing close to the starboard side and close to the stern of *Avenger* (without being seen by anyone on board) and then close to *Exeter*. HMS *Andromeda*, which was in the path of the Exocet, acquired the missile with its 967 radar and, when the missile got to a distance around 10 nautical miles, it was captured by the 910 radar of the Sea Wolf system. Practically all the escort ships, at one point or another, estimated that the missile had locked onto them and were heading in their direction.

At 1437 smoke was detected by HMS *Ambuscade*; then there was an explosion in the water, at approximately 7.8 nautical miles from the ship (bearing in mind information also gained from the frigate's radar). At this moment, contact with the

missile was also lost by HMS *Andromeda*.

During those confusing moments, the situation on board *Invincible* was not very different, now sailing on a course of 060°. Petty Officer Rod Fearnley, on the flight deck of the ship, remembers looking for somewhere to take cover in case of an impact. The attack, which was taking place outside of visual range, was related as a commentary (seemingly somewhat imprecisely) piped on the ship's Tannoy. That day he noted in his diary:

Very cold. Hail and sleet showers. The ship was alerted to attacks by Étendards at 1830 and 2230. During the first raid the (HMS) *Exeter* splashed their missiles (Exocet) Good for her! (HMS) *Ambuscade* scared the others off. We only fired Chaff D.

Another crewmember, Warrant Officer Nicholas Lutwyche was in charge of some GPMGs that had been mounted for close protection of the ship. With a thousand rounds, patiently waited for a target to appear, but he did not see any.

Minutes later, the Wessex V headed over to the site of the explosion of the second Skyhawk (close by *Avenger*), where the water was coloured turquoise and debris from the aircraft was floating on the surface. From *Andromeda's* Lynx it was also possible to see the coloured water and the remains of an ejector seat sinking slowly. An NCO on board the Wessex lowered a hook on a line and recovered a one-man life-raft, full of holes. *Avenger* also launched a boat and recovered a small piece of the aircraft.





The A-4C (C-321) of *Primer Teniente* Ernesto Ureta takes on fuel on the return leg. Note that it is no longer carrying its bomb load. (Roberto Briend, via Eduardo Daghero)

The combat reports immediately after the attack were a little confusing. *Exeter* reported that it had shot down a Super Étendard and another airborne contact of indeterminate characteristics. At the same time, *Avenger* logged an Exocet and a little later added an A-4.

Days later, the Admiral's staff concluded that the Carrier Battle Group had been attacked by one or two Super Étendards, accompanied by three or four Skyhawks, and that possibly *Exeter*, with its Sea Darts, had hit two of the A-4s. The commander of *Exeter*, additionally, in a new evaluation of the incident, concluded with 100 percent certainty that his ship had shot down one of the two A-4s. He also indicated that an Exocet had penetrated to the inner ring of ships, and that another possible Exocet had hung up and not left its launch aircraft, could not fly or had flown in tandem with the first.

The attack on 30 May 1982 took the British completely by surprise. According to Admiral Woodward:

As serious attack mission, it was not badly thought out, even though it did require a very long round trip.

Moreover, according to the CO of HMS *Exeter*, Hugh Balfour:

...was a most exciting, enterprising mission, requiring a lot of refuelling. A good, brave operation by anybody's standards.

For the Task Force, from the initial detection of the voices on HF radio, until the egress of the Skyhawks, the operation had lasted only six scant minutes. The success in repelling the attack, they considered, was due to the timely deployment of chaff and the rapid manoeuvring of the ships in showing the bow or stern to the missile in order to minimise the target area. As a lesson, it was understood that the firing of chaff should be carried out as soon as possible following a detection of an Agave radar. But the Argentines had exhausted their Exocet missile inventory.

After those minutes had passed, the two surviving Skyhawks refuelled in flight, warning that their companions would not return.

From the Hercules, the SAF was informed of the news of the mission according to Ureta's account while he was carrying out the refuelling manoeuvre, and the following is recorded in the *Fuerza Aérea Sur* War Diary:

1520 KC-130 reports SUEs and A-4Cs attacked carrier. 2 SUEs return without refuelling and 2 A-4Cs return. Information received on HF, A-4Cs confirm hit on carrier. ZEUS flight N°2 and 3 were shot down.

They landed safely at Río Grande and were quickly flown separately for mission debriefing. The SAF War Diary continues:

1725 A-4Cs and SUE arrive at 20 NM, SUE engages target and fires Exocet at 17 NM. The A-4Cs follow the missile guiding them to the target and Nos. 1 and 2 are shot down by missiles one minute from the target. 3 and 4 see smoke and drop their bombs. On leaving they can see a lot of smoke from quite a distance in their mirrors. The pilots after analysis and viewing photographs declare that they struck the carrier *INVINCIBLE* (Doubt remains) [*"Queda la duda"*, in the original document in Spanish].

As in previous missions, the pilots awaited news from London to confirm the outcome and consequences of their mission and, ultimately, the reconnaissance of the attacked ship. But on this occasion, this was not the case.

Following the news sent from the Carrier Battle Group, and the news from Buenos Aires about the *Invincible* "on fire", which generated some turbulence in the London press, the British Ministry of Defence issued the following communiqué shortly before midnight on 30 May:

MOD STATEMENT AT 1120 pm 30 MAY 1982. Several Argentine Naval Aircraft attempted to attack the Carrier Battle Group this





The cover of "10 Magazine", 1 June 1982. In the absence of photos to illustrate the cover story, the magazine's editors added smoke to a photograph they had of HMS *Invincible*. As soon as the magazine appeared on the newsstands, its editor received a call from the Argentine Air Force, asking if the photo was real. (Revista 10)

afternoon. None of our ships was hit. One Skyhawk aircraft is believed to have been shot down by an escorting destroyer.

The first official communiqué issued by the Argentine Joint Chiefs of Staff (Number 111) stated that the Super Étendard with Exocet missiles and the A-4C with bombs "attacked the main body of the British force, causing damage that is in the process of being assessed". A few hours later, a new communiqué (Number 112) gave more details, reporting on the attack "in an unprecedented operation on an aircraft carrier type ship, leaving it out of combat due to the

serious damage received" and that "the aforementioned operation, due to its technical-operational characteristics, demonstrates the high professionalism of our pilots and the capacity of our forces to carry out joint operations".

It was not until 1 June that the name of HMS *Invincible* was mentioned in an official Argentine communiqué (Communiqué Number 118).

The official caution in the reports was not matched by the Argentine media. The controversy over the outcome of the attack started then in Argentina, a controversy that continues to this day



# LA VOZ DEL INTERIOR

Lunes a sábado \$ 5.000. Domingo \$ 7.000. Recargo vía aérea \$ 100.

Córdoba (República Argentina), lunes 31 de mayo de 1982

Edición de 22 páginas en dos secciones

## El Reino Unido sigue bloqueando las negociaciones

Información en página 4

# Arde el Invencible

## *El portaaviones británico se estaría hundiendo con 900 tripulantes, cinco aviones y diez helicópteros*

Alcanzado por un misil Exocet y rematado por cuatro bombas de mil libras cada una. La nave no pudo eludir la eficacia de la aviación argentina. Los combates en Puerto Darwin y Goose Green. Las fuerzas invasoras intentan capturar Puerto Argentino. Dos Sea Harrier derribados.

Buenos Aires, Londres, (AFP - NA - Saporiti - Telam - AP - UPI). — El operativo que permitió el posible hundimiento ayer a las 14.30 del portaaviones inglés "Invencible" fue planificado por la Fuerza Aérea y concretado con la colaboración de la Armada, aseguró anoche una calificada fuente militar.

Cuatro aviones A4C Skyhawk, escoltas de Mirage y un Super Étendard, portador de misiles Exocet, atacaron a la flota en su retaguardia, indicó la fuente.

El portaaviones se encontraba rodeado por embarcaciones, lo que permite especular que estaban preparando una operación anfibia sobre Malvinas, y en particular con dirección a Puerto Argentino, último bastión en poder de la Argentina en el archipiélago.

El "Invencible" fue alcanzado por un Exocet y estalló en llamas mientras que los Skyhawk "lo remataron" con "no menos de cuatro impactos con bombas de mil libras cada una", precisó el vocero.

Una observación visual, añadió la fuente, permitió ver que el portaaviones se hundía en medio de una nube de humo.

En el momento de los impactos, resaló el informante, se pudo observar, asimismo, una "verdadera disparada" de los navíos ingleses de escolta.

En opinión de analistas militares argentinos, que aseguran que el "Hermes" ya está fuera de combate desde hace varias semanas, las tropas invasoras se movieron ahora sin sufrir

### Un mito en llamas

Cuando el gobierno inglés, medularmente impactado en su soberbia imperial por el hecho del desembarco argentino en las islas del sur, dispuso el desplazamiento de su flota con fines declaradamente punitivos, al tiempo que se advertía que tales navíos integraban el poder naval más extraordinario que hubiese surcado los mares del Atlántico Sur, se puso un énfasis especial para destacar que frente a la expedición punitiva, con rango de buque insignia, marchaba el poderoso portaaviones "Invencible".

En esa nave, instituida como asiento natural del comandante de la expedición represora, está simbólicamente representada la intención imperial de escarmentar sangrientamente a un pueblo que, según las inflexibles reglas del colonialismo usurpador, no admite margen para que nazca alguna de la tierra pueda

erguirse, digna y soberana, en defensa de lo que le corresponde por derecho.

Hoy, esa versión de la prepotencia, provista de un arsenal bélico y de tropas convenientemente entrenadas para consumir el sueño del despojo, arde envuelta en llamas amenazando con recalar, no en las costas argentinas, sino definitivamente en el fondo del mar.

Su hundimiento, apurado por un acto de legítima defensa, será una prueba más para que el invasor comprenda que nuestro país, que no busca esta guerra, está de pie, más firme y unido que nunca, para resistir la absurda pretensión de reinstalar en nuestras islas su pabellón. Y esa convicción, asumida por todo un pueblo agredido, no será arriada ni por el furor del ataque enemigo ni tampoco —está demostrado— por la presencia arrogante de navíos con patente de pre-fabricada invulnerabilidad.



"Invincible's burning". With a photograph of HMS Hermes, the front page of the Argentine daily "La Voz del Interior" on 31 May, states that "the British aircraft carrier is reportedly sinking with 900 crew, five airplanes and ten helicopters". (La Voz del Interior)

by those who claim that the *Invincible* was attacked successfully, based on the accounts of the surviving pilots and on the existence of conspiracies and secrets that conceal the truth of what happened.

The late home arrival of HMS *Invincible* in September 1982 when its patrol in the South Atlantic ended also fuelled these theories.

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## 1 JUNE TO THE END OF THE WAR: WITHDRAWAL TO ESPORA

After 30 May, and in the absence of missiles, there was no justification for keeping the aircraft deployed in Tierra del Fuego. The inhospitable climate, the humidity and the possibility of an attack made it advisable for the entire squadron to return to Espora. On 1 June 3-A-202 and 3-A-205 were withdrawn, as well as the remaining personnel at Río Grande.

Some of the pilots, as mentioned above, were practising night flying from Espora, including refuelling and missile launching. Having already attacked from the north and south, it was considered that the new surprise to the Task Force would be a night attack, as this was something that had not been carried out in the war. The idea behind this was that, at some point, more Exocet missiles would become available, so that capability would have to be obtained.

Although the Argentines approached all sorts of people to do this, it never came to anything.

By 3 June, after the tactics to be used during night raids had been carefully planned the day before, the entire squadron was in night training.

Captain Colombo was under constant pressure for the Super Étendard to play a greater role in this stage of the conflict, returning to the south. However, this did not convince him, as the same problems that had determined him to go back to Espora remained:

I told my superiors: until I have the missiles in front of me, I will not deploy back to Río Grande. Only when I have the missiles, I will send the four planes back.





After the war, several members of the Squadron pose at Espora in front of 3-A-202. From left to right, Rodríguez Mariani, Collavino, Curilovic, Colombo (squadron commander), Agotegaray, Francisco and Bedacarratz. (via Claudio Meunier)



The silhouettes of HMS Sheffield and Atlantic Conveyor painted on 3-A-203. (via Claudio Meunier)

Consideration was also given to using the Super Étendard to guide the A-4Q Skyhawks, using the navigation systems they possessed. On 13 June the COAN even ordered (despite strong opposition from Captain Colombo) to send two aircraft to Río Grande for this purpose, but the order was cancelled the following day.

On 14 June, however, the Argentine forces on the islands surrendered. The war was over.

The squadron had had five operational sorties in the conflict and on three of these it had managed to reach a missile-launching position. The four aircraft and 10 pilots had flown a total of 28.4 combat hours, as well as 328.2 hours of training during the war.

The mechanics had also given their all: the aircraft had a 93 percent readiness rate throughout the war.

On these three missions, all five AM-39 Exocet missiles that were available were launched, scoring (at least) three hits. The destroyer HMS *Sheffield* and the *Atlantic Conveyor* were sunk as a result of these hits. The attack on HMS *Invincible* is still subject of debate in Argentina.

They had lost neither pilots nor aircraft. They had not even ejected a fuel tank. Not even one missile or machine gun ammunition had been fired at them. It should be borne in mind that the Super Étendards only spent less than 20 minutes on British radars during the entire conflict.

Beyond the actual attacks, the mere presence of the Super Étendard/Exocet duo had generated a considerable expenditure of resources across the Task Force. From the early warning flights of Lynx helicopters with Orange Crop equipment to the Lynx equipped with the Hampton Mayfair ECM, in addition to the huge amount of chaff deployed and the positioning of ships as forward pickets, it all conditioned the fleet's freedom of action. And, of course, the cry of Handbrake! was a major psychological factor for the sailors deployed, from those on the carriers to those in the smaller units.

The squadron's numbers clearly demonstrate the importance of the use of modern and reliable weaponry, in the hands of trained

personnel, in a medium/high intensity conflict. Compared to other units involved, they used very few resources, to very great effect.

Finally, the unit was recognised. It was awarded for "Honour for Valour in Combat", indicating in the citation that this was for "effectively executing attack operations using recently incorporated aircraft, demonstrating high professional capacity, by planning and carrying out missions of great complexity and risk that produced significant casualties in capital units of the enemy fleet".

*Capitán de Corbeta* Augusto Bedacarratz, *Capitán de Corbeta* Roberto Curilovic, *Teniente de Navío* Julio Barraza and *Teniente de Fragata* Armando Mayora were also awarded for "operating



Super Étendard aircraft and showing great dedication and high professionalism, causing heavy losses to the enemy”.

Captain Colombo was not awarded. The conflict with Rear Admiral García Boll almost cost him his career. But his prestige was too high, and he retired from the Argentine Navy as a *Capitán de Navío* (he never became an Admiral, nor did Bedacarratz, Curilovic, Francisco, Collavino, Barraza, Mayora, and Rodríguez Mariani). After the war he was posted to the United States and was there on 17 May 1987, when the frigate USS *Stark* was attacked by the Iraqis with AM-39 Exocet missiles. There was probably no other person in the United States who was as knowledgeable as him about

these missiles, which is why he was invited to participate in the investigation of the attack. A few years later he retired, with some 6,000 hours flying time.

Every year, around 4 May, Captain Colombo gets together with his nine pilots (all of whom are alive at the time of writing). He is still the boss. The recognition of subordinates is possibly the best medal an officer can aspire to.

Rear Admiral García Boll retired in December 1982. He was also not decorated for his part in the conflict. He is also still alive. He does not speak to Captain Colombo.

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## 14 JUNE 1982 ONWARDS: THE POST-WAR PERIOD

As with most of the military units on the mainland, the end of the war came as something of a surprise to the Second Naval Fighter and Attack Squadron. They now had to return to their peacetime duties.

The conflict had halted all training activities, just as the French arms embargo had halted the delivery of the rest of the aircraft, armaments and equipment that had been contracted. It had been planned that the aircraft would start embarked operations from March 1982, which clearly did not happen.

However, the squadron had achieved a reputation within the Argentine armed forces, as well as within all the naval attack units of the world. Beyond wanting to know how the attack tactics worked, there was much interest in finding out how they had managed to establish the dialogue between the missile and the aircraft, without the (overt) help of Aérospatiale.

Isabel Hilton, the *Sunday Times* journalist, travelled to Espora and Bahía Blanca and, after conversations with Captain Colombo and Hervé Colin (the young Dassault technician), published an article on 25 July, which told the story of how the French technicians had helped the Argentinians, despite the French arms embargo and without their superiors objecting in any way.

The case was uncovered and requests for explanations from France followed. Beyond a quick official denial, Charles Hernu, the French Defence Minister, spoke to the British Military Attaché in Paris and indicated that “the story told by Colin (the leader of the Dassault Team quoted by the *Sunday Times*) was simply not true: the work which the technicians were doing had been stopped”. Hernu surmised “that Colin might have been bribed to speak as he did or just wanted to cause trouble with the government. He was either mad, drunk, or in search of fame or money”. This was untrue. Colin (or the rest) had certainly not been given any instructions to stop doing their job. They were neither mad,

nor drunk, nor had they been bribed. They were simply fulfilling their duty.

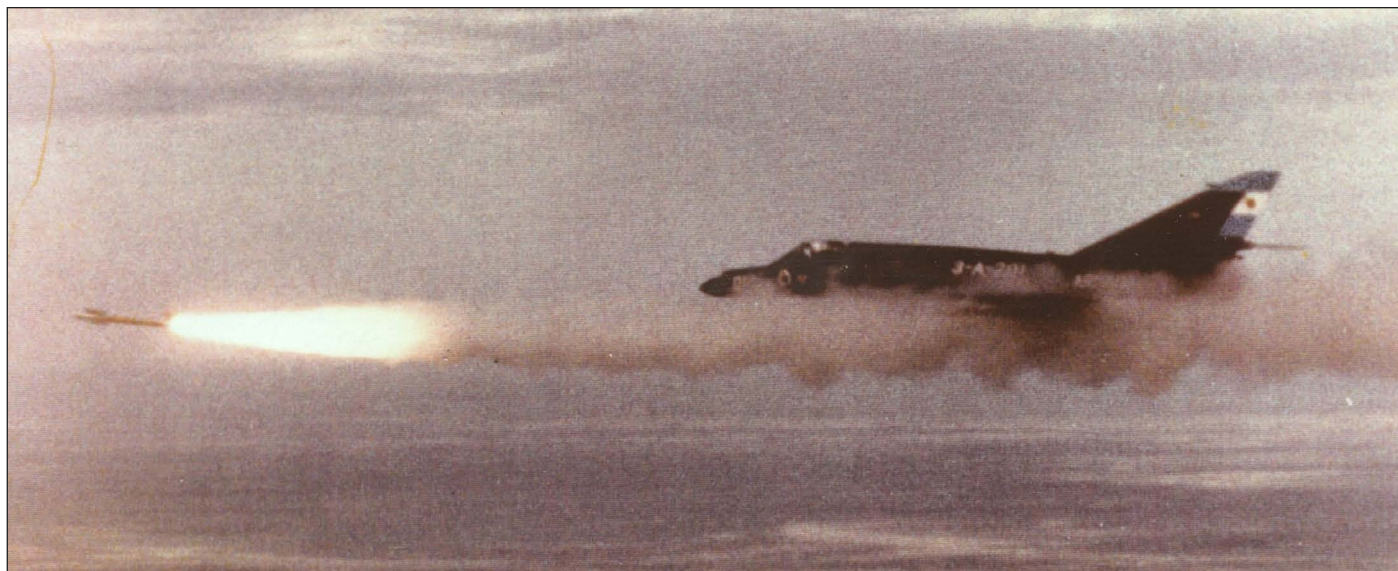
A couple of days later (on the 27th), the British ambassador in Paris was contacted at an official level, reaffirming that no help had been given and that, in any case, it was not necessary either, since the planes and missiles had been operational since November 1981 (which was false, since it was the specific task of the Aérospatiale team that never arrived in April). The French government had not, however, contacted Colin to ask his version of events: he was on vacation and they preferred not to bother him. The French authorities value their citizens’ holidays highly.

Both governments preferred to forget the matter quickly and attack the *Sunday Times* article (kill the messenger). It was in the British government’s interest not to generate friction with France and in France’s interest to continue selling arms to Argentina. Isabel Hilton ended up sending a very strong letter to the Foreign Office, setting the record straight and pointing out that her newspaper article was perfectly documented (including a recording of Colombo’s and Colin’s statements). No one in the government seemed to care.

On 6 August France lifted the arms embargo on Argentina. By this time, the squadron had begun training again, even though some of the pilots were leaving (some, momentarily) the Super Étendards. By 1 September, bomb and gunnery training was underway and on 24 October the unit participated, with two aircraft, in its first



Super Étendard 3-A-202 in flight, during a post-war training mission. (Argentine Navy)



A Super Étendard launches a MATRA R.550 Magic air-to-air missile in the vicinity of Puerto Belgrano, during the first half of the 1980s. (Armada Argentina)



A Super Étendard in a post-war training flight over the Argentine Patagonia. It is in the standard anti-surface configuration, with external fuel tanks of 600 litres on the central station and 1,100 litres on the left wing, and an Exocet AM-39 missile on its starboard wing. (Armada Argentina)

international exercise, Operativo FRATERNAL, with Brazilian naval units.

The tense relationship between Britain and France over the Super Étendard/Exocet continued even after the end of the conflict, with the British pressuring the French government to suspend missile deliveries after the lifting of the arms embargo. France eventually thwarted these desires, honouring – albeit belatedly – the contracts signed with Argentina.

Despite British protests, nine Super Étendard aircraft were secretly loaded at the port of Saint-Nazaire, while a cargo of five Exocet missiles was flown to its destination in Argentina on the night of 20/21 November 1982. The French did so with great discretion to “avoid British interference”.

On 6 December 1982, Jorge Luis Colombo (who had by then been promoted to *Capitán de Fragata*), with his mission accomplished, handed over command of the unit to *Capitán de Corbeta* Augusto Bedacarratz. Two years earlier, he had taken over as commander of

a squadron without aircraft, trained his pilots, gone to war and sunk two ships. Quite an achievement.

Two days later, the transport ARA *Bahía San Blas* docked at Puerto Belgrano with five Super Étendards (registration 3-A-206, 3-A-207, 3-A-208, 3-A-209 and 3-A-210) and weeks later (21 December) the ARA *Cabo de Hornos* completed the remaining four aircraft (registration 3-A-211 to 3-A-214). Along with the aircraft, the remaining material ordered from France would also arrive, including bombs (250kg MATRA SAMP Type 25A and Type 25F1 and 400kg MATRA SAMP Type 21C and Type 25F1), fuel tanks and reconnaissance pods (Thales Optronicon Vicon 18 Series 360-140A).

After renewed complaints from the Foreign Office, the Quai d’Orsay would recall that the British themselves were delivering Rolls Royce turbines for the Argentine ships being built in Germany. Business was business. The wheel kept turning.

It was not until 1983 that the Squadron was able to begin carrier operations. To achieve this, certain modifications had to be made to the aircraft carrier ARA *25 de Mayo* (which had been planned





On 4 April 1983, the Commander of *Segunda Escuadrilla Aeronaval de Caza y Ataque*, *Capitán de Corbeta* Augusto Bedacarratz, Second Commander *Capitán de Corbeta* Roberto Curilovic, *Teniente de Navío* Julio Barraza and *Teniente de Navío* Armando Mayora were awarded with the "Honour for Valour in Combat" medals. All of them were the ones that had participated in the successful attacks against HMS *Sheffield* and SS *Atlantic Conveyor*. At the same ceremony, the unit was also decorated with the "Honour for Valour in Combat" award. The ceremony was presided over by the Commander of Naval Aviation, *Contralmirante* Eduardo Rivero Kelly. (historical book of the *Segunda Escuadrilla Aeronaval de Caza y Ataque*)

beforehand): magazines were built for the Magic and Exocet missiles, and a SAGEM inertial system was installed by the efficient Christian Larrieu. This allowed correct synchronisation with the Super Étendard inertial control units, which was connected to the MAGNAVOX satellite navigation system and the SAGEM speed measurement unit. The flight deck was also enlarged to accommodate

as many aircraft as possible, and the carrier's single catapult (BS-4) was modified to provide more power for Super Étendard operations.

After intense training at Espora, on 18 April 1983 at 1818, *Capitán de Corbeta* Augusto Bedacarratz, who was still commander of the squadron, managed to hook into the third wire of the ARA *25 de Mayo*, making 3-A-208 the first Super Étendard to operate on the Argentine carrier. The following day, Captain Bedacarratz, in the



Two Super Étendard aircraft in the Squadron's hangar at Espora Naval Air Base, 1986. (Guillermo Sentis)





Landing sequence of Super Étendard aircraft on the aircraft carrier ARA 25 de Mayo, during exercises in April 1983. (via Christian Larrieu)





Launching of AM-39 Exocet missile by 3-A-207 (Captain Rótolo). It is evident how the missile falls from the aircraft and only then does the rocket engine ignite. Captain Rótolo took part in the Falklands/Malvinas conflict with the A-4Q Skyhawks of the *Tercera Escuadrilla Aeronaval de Caza y Ataque*, participating in the attack to the frigate *HMS Ardent*, which later sank. (via Claudio Meunier)



same aircraft, would make the first take-off. Ramon Josa was again among the instructors. The Argentinians had paid him a first-class ticket to Buenos Aires.

In that first operation at sea, which ended on 21 April, 3-A-205 and 3-A-207 also participated. Other pilots deployed were Lieutenant Collavino and Captain Curilovic. From that moment on, an unexpected problem arose for the Super Étendard carrier operation, which no one had foreseen. *Teniente de Navío* Juan José Membrana was piloting a Grumman S-2E Tracker anti-submarine aircraft (also embarked) and recalls:

There were two accidents in which the nose wheel spar broke during landing. The resulting investigation showed that when the Super Étendard impacted the deck, the energy applied to the stern lift caused it to descend and the nose wheel impacted on the edge. This was solved in a hurry: the stern lift was welded to the deck and the ship operated for four years with only the bow lift. This was not acceptable; the ship needed its two lifts to be able to operate without limitations. What was needed was to redesign the lift locks.

Much more flying took place in the second deployment of the year, which began on 5 July (until 13 July) 1983 and involved two new pilots, Lieutenant José Arca and Lieutenant Benito Rótolo, both of whom had fought in the Falklands/Malvinas flying A-4Qs, the former having ejected near the capital of the islands. On 11 July, the first flight from the carrier of a Super Étendard carrying an AM-39 Exocet took place. It was the culmination of Captain Lavezzo's plan.

By this time, the squadron was embarking six aircraft on the carrier, and the Third Squadron five A-4Q Skyhawks. Together with S-2E Tracker aircraft and Sea King and Alouette III helicopters, the Embarked Air Wing was the most powerful air-naval force in the southern hemisphere. This was the high point of Argentine naval aviation.

The number of Exocets was also rising. Making use of a clause in the original contract, which allowed for an expansion of the equipment purchased, Argentina ordered 10 extra AM-39 missiles, of which six were delivered in November 1983 and four in January 1984. Although France had said it would keep Britain informed of new arms contracts involving Argentina, the subtlety that this was an extension of the old contract meant that the British government was only informed in May 1984, when the missiles had already arrived in Espora.

Super Étendard operations on the ARA 25 de Mayo continued until 4 March 1988, when Lieutenant Rótolo, in 3-A-204, used the catapult for the last time, to put an end to the squadron's relationship with the old aircraft carrier. Shortly afterwards, it would be decommissioned from active service.

Likewise, on 8 November of that year, the recently promoted *Capitán de Corbeta* Rótolo would launch the first Argentine Exocet since 30 May 1982. Operating from the airport near Mar del Plata Naval Base, and leading two sections of Super Étendard, he launched the missile against the destroyer ex-ARA *Bouchard* (ex-USS *Borie*) from 3-A-207. The ship had previously been struck by an Exocet MM-38 missile launched by the corvette ARA *Espora* (MEKO 140 class).

Captain Rótolo is not sure about the missile impact:



*Capitán de Corbeta* Benito Italo Rótolo, on the left of the picture, posing in front of 3-A-207 and the AM-39 Exocet missile he would launch on 8 November 1988, against the former ARA *Bouchard*. (via Claudio Meunier)





3-A-211 flies over the aircraft carrier USS *Abraham Lincoln* (CVN 72) as part of one of the Gringo-Gauche exercises in October 1990. (US Navy)



3-A-207 just ahead of an F-14 Tomcat on the aircraft carrier USS *Abraham Lincoln* (CVN 72), as part of the Gringo-Gauche II exercise, in October 1990. Five Super Étendards and two S-2E Trackers of the *Escuadrilla Aeronaval Antisubmarina* (2-AS-24 and 2-AS-26) took part in the exercise. The destroyer ARA *Sarandí* (D-13), corvette ARA *Parker* (P-44) and corvette ARA *Guerrico* (P-32) also participated. (US Navy)

The missile went out, but I saw that it then lifted too much, even though afterwards it seemed to level off as it should have done. It wasn't clear if it hit the target.

In the end, the old destroyer did not sink, being towed away and subsequently scrapped. During the scrapping, no remains of Captain Rótolo's AM-39 were recovered, although parts of the MM-38 that had been launched earlier were found, suggesting that the missile launched by the Super Étendard was lost.

The following year, 1989, the squadron suffered its first serious accident. On 1 August, 3-A-210 under the command of *Teniente*

*de Fragata* Carlos "Trueno" Manchinelli, crashed into the sea near Monte Hermoso (some 650km south of Buenos Aires) during a training flight, unfortunately resulting in the pilot's death.

However, by 4 September (and until the 16th), 3-A-210 was participating in an exercise with the US Navy, which deployed two Grumman E-2C Hawkeye aircraft (from VAW-88 Cotton Pickers) for air-to-air and air-to-sea guidance.

Shortly afterwards, on 11 December of that intense year, 3-A-212 under the command of *Teniente de Navío* Félix Médici (a South Atlantic War veteran with the Third Squadron) was lost two kilometres from the Isla Verde range (near Espora) when the aircraft





The Super Étendard 3-A-203 of *Teniente de Navío Sergio "Kutu" Márquez* unintentionally hooks (the tail hook was clearly retracted) on one of the arresting cables of the Brazilian aircraft carrier *Minas Gerais*, on 29 November 1995. (Marinha do Brasil)

had a flame-out and the pilot was unable to restart the turbine. The dialogue with the section leader (in 3-A-208) was recorded:

"No reignition"

"Ok, look for conditions and try to restart it if you have more than 5,000 feet"

"Not working"

"Ok, look for better ejection conditions and eject. Eject if it doesn't restart. Eject!"

"..."

"Wingman ejected. I've got him in sight, he's parachuting down"

"..."

"MAZO. Do you read me MAZO?"

"Loud and clear. How are you, sir?"

"Well, I'm perfectly fine, I hit my head a little bit, but the helmet cushioned it well. I'm fine, I have a flare, but it doesn't work, now I'm going to try to use the (signals) mirror"

"I have you in sight, about 600 metres away there is a truck already looking for you"

Lieutenant Médici ejected successfully and had no major injuries.

After this extreme 1989, things improved for the squadron in the following years. The idea of the Naval Aviation Command was that its

crews should not lose the ability to operate on a carrier.

In view of the favourable political situation between the United States and Argentina, the 90s saw the birth of the Gringo-Gacho exercises, the first of which took place in March 1990 and saw Argentine aircraft (both Super Étendard and Grumman S-2E Tracker) operate from the aircraft carrier USS *Constellation*.

These exercises took advantage of the deployment of the US aircraft carriers from one ocean to another, bearing in mind that they had to cross Cape Horn, since due to their size they could not transit the Panama Canal. Since US catapult systems were not



A Super Étendard ready for take-off at Espora, in 1996. (Guillermo Sentis)





Lieutenant Sergio Márquez's Super Étendard 3-A-203 is lowered by crane from the Brazilian Navy aircraft carrier NAeL *Minas Gerais* (A-11) at Puerto Belgrano. In the background the deactivated Argentine aircraft carrier ARA 25 de Mayo can be seen. (Argentine Navy)

compatible with the French aircraft, only touch-and-go exercises were conducted with the Super Étendard.

Similar exercises were repeated in October 1990 (USS *Abraham Lincoln*), November 1992 (USS *Kitty Hawk*), June 1993 (again, USS *Constellation*) and June 1994 (USS *Ronald Reagan*).

In 1993 the Second Squadron also began operating from the Brazilian aircraft carrier *Minas Gerais*, twin of ARA 25 de Mayo, from which it had inherited certain spare parts to keep it in operation. At that time, Brazilian naval aviation did not operate fixed-wing aircraft, so the ARAEX exercises were of great interest to both countries, as the possibility for the Argentine Navy to continue operating embarked aircraft and, for the Brazilian Navy, to generate experience and knowledge for its future naval aviation projects.

However, as the *Minas Gerais*'s catapult system was not operational, only touch-and-go exercises were conducted. ARAEX exercises were repeated in December 1994 and November 1995, the latter of which involved a curious incident. On 29 November 1995, Super Étendard 3-A-203, under the command of *Teniente de Navío* Sergio "Kutu" Márquez, was conducting a touch-and-go exercise on the *Minas Gerais*. On touching down on the runway, with the arrestor gear cables in place and at a slightly higher altitude than usual, the aircraft caught its arrestor hook, while still retracted, on one of the cables, causing it to brake abruptly. It was the only landing of an Argentine Super Étendard on the old Brazilian aircraft carrier, albeit unintentional.

*Capitán de Fragata* Benito Rótolo was on board the Brazilian carrier:

Márquez's aircraft suddenly snagged the braking cable. I was there, I ran out, stood in front of him and shouted at him to cut the engine. Nobody knew what to do. With the pilot calmer and the aircraft on deck, I suggested that it should be lowered into the hangar, which was done. That night there was a party at the *Minas Gerais* and Márquez was the unintended star of the gala.

While the catapult was still inoperative, it was decided that the ship be brought into Puerto Belgrano and finish lowering the aircraft with a crane. Unfortunately, Lieutenant Márquez died on 29 May 1996, when he crashed in command of the same 3-A-203 during a training flight at very low altitude at Punta Indio Naval Air Base.

A few months later, on 16 October 1996, the squadron conducted its second post-war launch of the AM-39 Exocet missile, over the small ex-ARA

*Chiriguano* (ex-USS ATA – 227), launched by 3-A-202 under the command of *Capitán de Corbeta* Daniel Manzella (a veteran of the 1982 conflict, having had an interesting encounter on 1 May with Sea Harriers, while being in command of a Beechcraft T-34C Turbo Mentor training turboprop). Previously, the destroyer ARA *Almirante Brown* (MEKO 360 class) had struck *Chiriguano* with an MM-38, which had caused severe damage and a fire, but had not sunk it. Perhaps recalling the experience of the 30 May 1982 attack, an Air Force IAI Finger aircraft (the improved version of the Dagger that had participated in the South Atlantic War) followed in the missile's wake.

Captain Manzella recalls:

It was a very interesting operation, and it had been a long time since a missile had been launched in the Naval Aviation. Initially, a surface-to-surface missile was launched at the ship, without sinking it. The plan was that if the ship stayed afloat, we would take off. So, three Super took off (me with the missile and the others as observers), plus an Air Force Mirage as a guest observer.

The 80s and 90s had been extremely intense for the members of the squadron. They trained, participated in a war, qualified to fly on aircraft carriers, conducted exercises with aircraft carriers from other countries and lost three aircraft and two pilots. The aircraft,



3-A-213 touch-and-go on the deck of the USS *Ronald Reagan* (CVN 76), on 17 June 2004, during the Gringo-Gaucha V. In this exercise, the corvette *ARA Spiro* (P-43), S-2T Turbo Tracker aircraft and Sea King and Alouette III helicopters also participated. (US Navy)

equipment and doctrine were still valid, even if they were slowly being overtaken by new technologies.

The new century brought with it a huge crisis in the Argentine economy (possibly the biggest in a country accustomed to periodic crises), which influenced the number of flying hours available to each pilot, as well as the availability of the machines, which were being preserved and rotated.

However, in an unfavourable context, the squadron continued to participate in deployments and training, taking part in Gringo-Gaucha exercises in 2001 (USS *Nimitz*), 2004 (USS *Ronald Reagan*), 2008 (USS *George Washington*) and 2010 (USS *Carl Vinson*).

It is worth mentioning that, in the last ones, the Argentine Navy aircraft could not touch the runway due to the change in the mirror landing system, only performing approach manoeuvres to the aircraft carriers.

An interesting ARAEX exercise (number VI) was also carried out between 2 and 6 May 2002. On that date, the *Marinha's* flagship was the aircraft carrier *Sao Paulo*. It was none other than the *Foch*, which the Brazilians had acquired from France in 2000.

At that time, considering that there were no limitations to operating from this aircraft carrier (in fact, it was an aircraft specifically designed for it!), three Super Étendards were able to form a strike group together with the A-4KU (AF-1) Skyhawks of the VF-1 Squadron of the Brazilian navy. This was a remarkable exercise for Argentine Naval Aviation, as three Grumman S-2T Turbo Tracker aircraft were also deployed on the Brazilian aircraft carrier, as well as Sikorsky SH-3 Sea King, Sud Aviation SA316 Alouette III and Aérospatiale AS-555-SN Fennec helicopters.

Likewise, the Argentine Super Étendard was slightly modernised, with a GPS system installed, as well as modifications to carry the ARA link system, which allows data to be shared between different platforms (aircraft, ships, etc.).

As far as armament was concerned, no modern weapons had been incorporated in those years, even though the aircraft had participated in the homologation tests of the Dardo-II-B glider bomb (guided by GPS), a project of the Argentine Air Force at the beginning of the twenty-first century.

In 2005, studies began to buy some Super Étendard aircraft from France, which, according to a French announcement, would be deactivated from 2012, with their final and definitive retirement in 2015 (they were finally retired in July 2016). The French aircraft had extensive upgrades and were known as Super Étendard Modernisé (or SEM). The *Marine Nationale* had initiated a Super Étendard upgrade programme in the 1980s and, on 5 October 1990, flew the first SEM. Since then, several progressive modernisation programmes followed, leading to the SEM Standard 5 in 2006.

Among the main changes between the original Super Étendard and the latest version are the replacement of the Agave radar by a Thales Anemone, installation of a ULISS 90 navigation system, replacement of the HUD, replacement of the RWR by a Thales Sherlock P system, new Alkan LL5081 chaff-flare launcher, possibility of launching guided weapons, compatibility with NVG (night vision goggles) and changes in the communications systems, among others.

While the Argentine aircraft had many flight hours remaining (most of their operational life, unlike the French machines, had been from airfields and not from aircraft carriers), the idea was to





Super Étendard 3-A-209 preparing for a training mission at Espora. The pilot is already in the aircraft and is assisted by the ground crew. (Martín Otero)



3-A-211 refuelling in a KC-130H of the Argentine Air Force, during an exercise. (Martín Otero)



The Super Étendard 3-A-211 and 3-A-214 on the apron at Espora Naval Air Base, operating together with A-4AR Fightinghawks of the Argentine Air Force. (Martín Otero)

acquire some French aircraft in 2012, to dismantle their equipment and mount it on the Argentine aircraft.

It was only in December 2017 that the Argentine government signed an agreement with the French to transfer five Super Étendard Modernisé (SEM Standard 5), eight ATAR 8K50 engines, a flight simulator, test beds, tools and manuals. Phimat and Alkan ECM equipment would also be procured. The total price for this equipment was only €12,550,000, Argentina being responsible for the organisation and cost of the logistics required for the transfer.

At that time, the availability of the COAN Super Étendard fleet was zero: there were no aircraft in flying condition, given the limited budget. Indeed, the squadron's last airworthy aircraft, 3-A-207 and 3-A-209, had made their last take-offs on 29 November and 21 December 2012, respectively. The remaining aircraft out of the original 14 had either been phased out of service over the years, preserved or, as noted, lost in operational accidents (3-A-203, 3-A-210 and 3-A-212).

3-A-201 had its last flight on 27 October 1993, 3-A-202 on 18 September 1997, 3-A-204 on 3 May 1988, 3-A-205 on 22 October 1988, 3-A-206 on 1 October 1998, 3-A-208 on 5 July 2000, 3-A-211 on 15 October 2007, 3-A-213 on 27 April 2009 and 3-A-214 had also flown for the last time on 18 December 2008.

They had not flown much. The most-used aircraft had been 3-A-214, with 2,500 flight hours and 3-A-204 had only accumulated 900. It was understood that the aircraft had, when they left the factory, around 4,000 flight hours available, but it was later concluded from studies carried out in France in 1987 that, with structural reinforcements, they could be used for up to 6,500 hours. Even 3-A-202 (very





A Super Étendard Modernisé (SEM) of the *Marine Nationale* doing touch-and-go on the aircraft carrier USS *Ronald Reagan* (CVN 76). Persian Gulf, 2006. (US Navy)



An Argentine Navy officer trains in the Super Étendard Modernisé simulator installed at Espora, in September 2019. (Armada Argentina)

active in the South Atlantic conflict), with a total of 2,035.5 hours (the first aircraft to reach 2,000 flight hours) was deactivated and sent to the Naval Aviation Museum, where it is currently located.

The plan, with this acquisition of aircraft, equipment and spare parts, was to enable an almost immediate revival of the squadron's flight line and to be able to operate with the Super Étendard for another 10 years, until its definitive deactivation. The idea was to always have at least four qualified pilots, who would fly 480 hours a year (between them).

Finally, the French aircraft (serial numbers 1, 31, 41, 44 and 51) and the remaining equipment arrived in Argentina (at the port of Bahía Blanca) on 13 May 2019, having been transported by the merchant ship *Lily Auerbach*. They were then taken overland

to Espora, where the flight simulator was installed and put into operation.

After several static tests, the aircraft are (in 2022) still waiting to fly again. The conditions in which they arrived was not entirely satisfactory: several corrections and purchases have had to be made (in an Argentine context of continuous shortage of funds for the armed forces), while it was also necessary to train the new technicians and pilots who would fly them. It should be remembered that there were no qualified jet pilots in the Argentine Navy then, so they began to train with their Air Force counterparts, starting

to fly FMA IA-63 Pampa aircraft. With lack of funds, complicated logistics and Argentina being the world's last operator of these aircraft, the Super Étendard will probably not be used for long in naval aviation.

However, "La Lora", which has been used to dress the Corsair, Fennec and Super Étendard, will surely be the crest for other, more modern, and powerful aircraft for the Argentine Navy in the future.



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